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AUTHOR	Peterson, Kristin; Davison, Mark; Wahlstrom, Kyla; Himes, John; Irish, Margaret L.
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ABSTRACT

This report provides Year 2 data comparing two types of school breakfast programs in Minnesota to schools that did not serve breakfast at all (No Breakfast schools): Fast Break to Learning, a universal free breakfast program (Fastbreak schools), and programs with a sliding fee scale (control schools). Data were collected from 30 Fastbreak, 195 control, and 40 No Breakfast schools through mail survey, in-school interviews, and data files. Among the main findings are that the most common student activity during breakfast was socializing. Some teachers expressed concern about the nutritional value of the food served and culturally sensitive menu planning. Bus schedules were cited as a barrier to program implementation. Student participation rates continued to increase for Fastbreak schools, but not in Control schools, and were higher in Fastbreak than in Control schools. Participation rates were higher where breakfast was served after the start of school compared to school where breakfast was served before school. Students in No Breakfast schools had the highest average achievement in mathematics, reading, and writing. Fifth graders in Fastbreak schools showed greater average writing score gains than students in other schools. There were no significant differences in attendance rates between Fastbreak and No Breakfast schools. The average number of morning nurse visits decreased after the breakfast program was implemented but the number of afternoon nurse visits increased. Disciplinary incidents decreased after the breakfast program was implemented. The report includes recommendations to improve participation rates, provide schools with best practice information, and provide more nutritious and culturally sensitive menus. Four appendices include demographic, achievement, and participation data and survey forms. (Contains 41 references.) (KB)

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FAST BREAK TO LEARNING SCHOOL BREAKFAST PROGRAM:

A Report of the Second Year Results, 2000-2001

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Kristin Peterson, *Office of Educational Accountability*
Mark Davison, Ph.D., *Office of Educational Accountability*
Kyla Wahlstrom, Ph.D., *Center for Applied Research & Educational Improvement*
John Himes, Ph.D., *School of Public Health, Division of Epidemiology*
Margaret L. Irish, *Office of Educational Accountability*

Jiyoung Choi, *Graduate Assistant*
Jeffrey Harring, *Graduate Assistant*
Leah Hjelseth, *Graduate Assistant*
Yun Jung Kang, *Graduate Assistant*
Yi-chen Wu, *Graduate Assistant*

FAST BREAK TO LEARNING
SCHOOL BREAKFAST PROGRAM:

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LITERATURE REVIEW

Research has shown that students often come to school either hungry, undernourished, or both (Food Research and Action Center (FRAC), 1989). Malnourishment leads to an array of health problems in children, including extreme weight loss, stunted growth, weakened resistance to infection, brain damage, and in some cases death (Brown & Pollitt). In addition, poor overall nutrition affects the ability of children from all socioeconomic levels to learn (Troccoli, 1993). Children's breakfast consumption is therefore a critical contemporary issue facing families, educators, administrators, and policymakers. This literature review identifies some studies that have addressed the cognitive, academic, and behavioral effects that school breakfast programs have on participating children.

Children who eat breakfast tend to be healthier than those who do not eat breakfast with respect to calories consumed, protein and carbohydrate intake, and vitamin and mineral ingestion (Dwyer, 1998). Breakfast omission has been found to be more prevalent among African-American and Hispanic youth from low-income households (Dwyer, 1998). Sampson, et al. (1995) investigated the nutritional deficits associated with breakfast omission among 1,151 low-income African-American 2nd through 5th graders.

The authors measured breakfast consumption via a survey (Did you eat breakfast this morning? Did you eat a snack on the way to school?) administered four times over a two week period. Specific foods consumed throughout the day were measured by a 24-hour recall method, asking students to report all foods consumed up to the time of the interview that followed lunch. Results found that 22–25% of the subjects skipped breakfast before coming to school, and that breakfast skippers were significantly more likely than breakfast consumers to have inadequate intakes of essential nutrients such as vitamins A, B6, C, D, E, and calcium and iron. The authors concluded that skipping breakfast diminishes nutrient intake, leading to an array of health problems. Thus, according to the authors, efforts to increase breakfast availability to low income African-American children are recommended.

Such discoveries become salient when considering that children living in poverty are more susceptible to the myriad of negative health and cognitive effects caused by malnourishment than are other undernourished demographic groups in society (Center on Hunger, Poverty, and Nutrition Policy, 1998). Consequently, school feeding programs have been introduced in an effort to nourish children during the school day. The School Breakfast Program is one such program.

The School Breakfast Program, administered by the Food and Nutrition Service of the U.S. Department of Agriculture (USDA), began in 1966 with the Child Nutrition Act, which attempted to provide breakfast for children "in poor areas and areas where children travel a great distance to schools" (Kennedy, E., & Davis, C., 1998). In 1975, the School Breakfast

Program became permanently authorized and was made available to all children.

All public and non-profit schools are eligible for the program, and any child who meets eligibility requirements may participate. To receive a reduced price meal, a child's family income must fall below 185% of the federal poverty level. To receive a free breakfast, one's household income must fall below 130%. Parents must apply to the school in order for their children to receive a free or reduced-price breakfast. Schools participating in the School Breakfast Program receive financial support through federal funding, and must apply to their state education agency in order to institute a program (FRAC website).

The USDA requires that school breakfasts meet minimum nutritional standards, and must include one serving of milk, one serving of juice/fruit or vegetable, and two servings from the bread and/or meat groups (Dairy Council of Minnesota, 1993). Since its inception, the program has expanded to provide breakfast for millions of children nationwide. In 1996 alone, 7 million children and 68,426 schools participated in the School Breakfast Program (FRAC, website), with 90% of students taking part in the program being from low-income households (Dwyer et al, 1996).

Past Research on the Benefits of Breakfast

As far back as the mid-1900s, breakfast has been viewed as critical to daily functioning. This association has been reflected in the research. Dickie and Bender (1982) conducted an extensive review of literature focusing on the cognitive and academic benefits of eating breakfast. They point out that although early studies, dating back to the 1930s and 1940s, linked breakfast consumption with improved academic achievement, the research failed to obtain quantitative data or employ objective assessment methods. Instead, these studies used terms such as "increased nervousness" and "increased fatigue," via teacher and nurse reports, to describe the demeanor of students who skipped breakfast.

In the 1950s, Tuttle conducted the Iowa Breakfast Studies in an attempt to show the effects of a variety of breakfast regimens on various physiological parameters (Dickie & Bender, 1982). However, he was unable to show consistent negative links between breakfast omission and the work output of adults. When results did show a link, closer investigation of the research design revealed poor methodology such as small subject samples and subjective assessment techniques. More recently Brook, et al. (1973) were able to find a correlation between factory accidents and early morning meals. When subjects ate a high-energy glucose beverage, as opposed to a low energy beverage, the factory's accident rate decreased.

Regarding studies specific to school breakfast programs, Dickie and Bender (1982) report that research has failed to show a consistent link between program participation and improved test scores and attendance. They do cite one study (Richards, 1972), which concluded that occasional breakfast omission is more deleterious to performance on mental tests than constant omission of breakfast. Based on their final analysis, there was a lack of good evidence linking breakfast consumption and positive functioning. Therefore, Dickie and

Bender concluded that the adage, "breakfast is the most important meal of the day" was nothing more than a myth.

However, today's advanced technology, current research designs, and sophisticated statistical analysis make the continuing lack of research unacceptable. In fact, contemporary scientific research is increasingly supporting the overall importance of breakfast with regards to health and behavior (Dairy Council of Minnesota, 1993). It is being found that school breakfast programs not only serve as ways to alleviate hunger among low-income children, but also are linked with improved mental and psychological functioning among pupils (FRAC, 1989). Troccoli (1993) recommends that more studies linking good nutrition to improved academic achievement and increased attendance be conducted in order to build support for, and expand, good child nutrition programs.

Reports from Schools on the Effects of the School Breakfast Program

Aside from the small number of studies on academic performance and cognitive functions mentioned later in this review, there are reports from individual school systems where the School Breakfast Program has been implemented. In 1994, the Department of Education for the State of Connecticut published a report on teachers' perceptions of the School Breakfast Program.

Three hundred teachers of first through third graders were mailed surveys asking about their opinions on the School Breakfast Program's effect on the classroom. Sixty-three percent (188) responded to the survey. In this study, 75% of teachers who responded perceived the School Breakfast Program as helping to improve student behavior, including attentiveness and alertness, energy level, motivation, concentration, and self-discipline. More than half of the teachers (95 of 188) said they had seen students' independence, cooperation, responsibility, socialization, and curiosity increase as a result of participating in the School Breakfast Program.

Support for the program was even greater when teachers were asked whether or not the School Breakfast Program had a positive influence on the school day. Eighty-seven percent (163 of 188) of those responding answered that it did, compared with only 13% (25 of 188) who claimed it did not have a positive influence (Ragno, 1994).

Although the majority of teachers thought the School Breakfast Program was positive, approximately one-third (59 of 188) of teachers said that the program had made their job more difficult. Some of the teachers indicated that it took too much time away from teaching.

Overall, teachers in Connecticut perceived that children were experiencing benefits due to participation in the School Breakfast Program. As a final question, teachers were given the opportunity to share additional comments or opinions about the School Breakfast Program. These responses were then categorized into three groups: program support, program non-support, or program improvement needed. About half (51%) of teachers expressed

sentiments that were interpreted as support for the program, compared to 15% who did not support the program. Approximately one-third of respondents offered suggestions for improving upon the current system.

A study supported by General Mills, Inc. (Sampson, A.E., 1992), looked at the effects of School Breakfast Program participation on the dietary intake of 1,151 second through fifth grade children attending schools in East Orange, New Jersey. Of these, 900 children were included in an analysis of the effects of school breakfast on school performance, specifically academic and cognitive performance, and absence and tardiness rates among participants in the School Breakfast Program. The study design compared the outcome measures of School Breakfast Program participants to those of non-participants at three selected schools in East Orange.

Several cognitive tests were administered in homerooms in the morning; these included digit span forwards and digit span backwards, WISC-R mazes, WISC-R coding, cancellation tasks, Beery VMI, and Raven's Coloured Matrices. California Achievement Tests (CAT) with subtests for reading, writing, and math were used to measure academic performance. The authors hypothesized that participation in the School Breakfast Program would lead to a decline in absence and tardiness rates and improvements in cognitive and academic performance.

There were no differences in the attendance rates of either group at any of the schools prior to the implementation of the program. However, after the implementation of the School Breakfast Program, program participants had significantly higher attendance rates and decreased occurrences of tardiness than did non-participants ($P < .0001$). However, only *frequent* participation (defined as >75%) in the School Breakfast Program was significantly associated with improved attendance and decreased tardiness.

Prior to the implementation of the School Breakfast Program, participants had significantly lower scores for math, reading, and language ($P < .05$) than the non-participants. After the School Breakfast Program began, participant scores improved and were comparable to those of non-participants. However, the authors indicated that the independent contribution of frequent School Breakfast Program participation to the improvement in test scores was not statistically significant. Additionally, participation in the School Breakfast Program did not seem to result in statistically significant differences in standardized cognitive test scores. Sampson notes, "The lack of statistically significant results reflect the fact that there was no group of children whose diets had changed as a result of School Breakfast Program implementation. School performance changes resulting from dietary improvements could therefore not be addressed" (p. 45).

Another report produced by the Center for Applied Research and Educational Improvement (CAREI) at the University of Minnesota examined the effects of the Minnesota Universal Breakfast Pilot Study (Universal Free Breakfast Program) on students at six pilot schools in Minnesota (Wahlstrom, K.L., Bemis, A., & Schneider, J., 1997). Questions such as what affected students' participation in the Universal Free Breakfast Program, and what specific benefits were observed by school staff, parents, and students as a result of student participation in the breakfast program provided further evidence that eating breakfast

affects students' academic performance, their ability to concentrate and pay attention, their health/stress levels, and their behavior.

Data were collected using survey questions (in-person and telephone interviews and questionnaires). All respondents from pilot schools except principals/administrators, who were interviewed using open-ended questions only, were given opportunities to answer both open-ended questions and questionnaires based on scaled responses (i.e., the student questionnaire used a three-item scale: "very often," "sometimes," or "never"). Questions elicited opinion and perception from respondents, who were not asked to keep records throughout the three-year pilot program. Instead, interviews and questionnaires focused on each respondent's recollections and impressions of the program and its effects.

The response to the Universal Free Breakfast Program was overwhelmingly positive. Parents, teachers, administrators, nursing staff, food service personnel, and students generally agreed that the availability of the program, the way it was run, and the effects were positive for students, their families, and the school as a whole. Benefits mentioned by respondents included reduced stress, improved behavior, increased readiness to learn, fewer nurse's office visits due to head- and stomachaches, and a sense that even though classroom time may have been reduced to allow for breakfast, students were more able to focus on the task of learning and, therefore, more could be accomplished in less time. In some cases, respondents indicated that there had been challenges (for example, some food service staff mentioned space and time issues) but that necessary adjustments had been made and that the results were worth the adjustments.

Teachers were asked about four specific areas of students' behavior and performance, including physical effects, learning readiness, social behavior, and attendance. Parents from the pilot schools were asked their opinions of the Universal Free Breakfast Program: was the program a positive experience for the child and/or the family? Were nutritious foods offered? Should the program be continued? Would they be willing to pay for their children to participate if the program were no longer offered for free? Principals indicated that all children were given the opportunity to eat, and that there were affective benefits, a decrease in discipline and nurse referrals, an elimination of the need for snack breaks, and social and learning benefits for both teachers and students. Overall comments from the school nurses and food service personnel indicated positive support for the program as well.

The study's authors pointed out that the schools had also seen increases in reading and math scores on standardized tests, but that the variety of test publishers, testing schedules, and grades tested among the various pilot sites made comparisons difficult. In addition, the scope of this study did not extend to innovations that the pilot schools might be implementing at any given time during the three-year period, so that controlling for certain variables was not possible. Therefore, based on this data, the authors could not "conclude that the breakfast program is correlated with this general increase of scores" (p. iv).

Unfortunately, as of 1993, the School Breakfast Program was considered to be one of the most underutilized federal nutrition programs (Dairy Council of Minnesota, 1993). Compared to the National School Lunch Program (NSLP), the program was not as widely available, and tended to be mostly offered in

schools where the economic need was great. Student participation in the program was far less common than National School Lunch Program participation. However, surprisingly, research has shown that School Breakfast Program *availability* is not linked with participation (Kennedy & Davis, 1998). Other factors, such as lack of time, perceived social stigma, and logistical problems (i.e., bus schedules) have served as obstacles in the way of student participation (Kennedy & Davis, 1998). Consequently, several school districts have developed mechanisms intended to increase participation in the program.

Central Falls, Rhode Island, had a school breakfast program available for several years, but was not experiencing high participation rates. In 1994 the district launched a universally free breakfast program in hopes of increasing participation rates. The universally free breakfast led to an increase in School Breakfast Program participation and considerably fewer children entering the classroom hungry (Cook, et al, 1996). The study also found a decline in tardiness and absence rates in the Central Falls schools after implementation of the new program.

The Abell Foundation (1998) conducted a study comparing pilot elementary schools in Baltimore, using a reformed breakfast program, to elementary schools using the traditional, reduced-price feeding program that proved unpopular among students. The authors hypothesized that the traditional breakfast program was unpopular for two reasons. First, families believed a negative stigma was attached to reduced-price feeding programs. They did not want their children to get a reputation for being poor and needy. Second, meals were served before normal school hours, making it difficult for families to get their children to school at such an early hour. To combat these problems, the pilot schools served breakfast to all children at no cost. This made it impossible for students or faculty to tell who was in fact from a low-income family. The pilot schools also served meals in the students' first class during normal school hours, circumventing scheduling complications faced by families.

Schools employing the pilot feeding program saw School Breakfast Program participation reach 85% of students, versus 18% participation in the schools using traditional breakfast programs. Pilot schools saw class attendance increase by 4% compared to a 1% decrease in schools using traditional breakfast programs. Disciplinary incidents decreased by 50% in pilot schools, while remaining constant in the schools using traditional breakfast programs.

Educators showed additional support for the pilot program through anecdotal evidence. Teachers indicated that there was a salient human element to the pilot breakfast program. The kids appeared to socialize more, stay in friendly moods throughout the day, and engaged in more playful behavior. The authors' conclusion was that for a School Breakfast Program to succeed, it needs to be stigma-free and relatively compatible with families' schedules.

Another pilot feeding program was instituted in Philadelphia between 1990 and 1992 (McGlinch, 1992). In an effort to reduce burdensome paperwork and eliminate stigmas associated with meal program participation, educators forfeited cash collection from *all* students in schools where 70% of students were eligible for free meals. School administrators no longer had to review feeding program forms, hand out meal tickets, or prepare rosters of eligible

kids. The author estimated that over 13,000 hours of administration time was saved and costs were reduced by $96,000.

In addition, by concentrating on schools with a 70% or greater rate of free-meal-eligible students, the schools were able to net a positive bottom line of over $644,000 through reimbursement and subsidy programs. Also, the stigma of welfare, which McGlinchey pointed out as being the main obstacle to free and reduced-price meal program participation, was eliminated since meals became free to all students. Unhindered by stigma, children increased their breakfast program participation by over 3,000 meals.

The reports from individual school systems are generally based on the perceptions of parents, teachers, and students rather than on hard data from scientifically designed studies. However, reports consistently indicate that the School Breakfast Program has provided benefits such as decreased absence and tardiness rates, improved readiness to learn, and gains in social behavior among participating children.

Studies Examining the Effects of Hunger and School Breakfast Program participation on Academic Performance, Attendance, and Social Behavior

Few studies directly link the School Breakfast Program with increased or improved academic achievement. Those that do often focus on children from low-income backgrounds, or children with poor nutritional status, supporting implementation of the School Breakfast Program in primarily low-income areas. The following studies have identified the effects of the School Breakfast Program on children's academic performance.

A study by Meyers, Sampson, Weitzman, Rogers, and Kayne (1989) examined standardized test scores, tardiness and absence rates among low-income elementary school children in grades three through six in Lawrence, Massachusetts, before and after the implementation of the School Breakfast Program. The School Breakfast Program had 335 participants and 688 non-participants. The *Comprehensive Test of Basic Skills (CTBS)* was given to the children in the spring before the start of the School Breakfast Program. At that time, children who eventually became participants in the School Breakfast Program had significantly lower reading and math scores, and lower *CTBS* battery total scores than non-participants. Although not significant, scores for language were marginally lower than non-participants.

The School Breakfast Program began in January, at the start of the second semester of school. The *CTBS* was then re-administered in the spring approximately three months after the School Breakfast Program implementation. The researchers found that School Breakfast Program participation was strongly associated with improved standardized achievement test scores. Increases from the previous year's language and *CTBS* battery total scores were significantly greater for participants than for non-participants. In addition, the study found a negative association between participation in the School Breakfast Program and rates of absenteeism and tardiness. However, the study did not take into account factors such as family income, family structure, length of stay of the child and their family in the United States, or the educational achievement of

the children's parents (Meyers et al., 1989), all of which may play a role in a child's educational development.

An article by Simeon (1998) reviewed a longitudinal study that evaluated the link between the School Breakfast Program and achievement, attendance, and physical growth among Jamaican 7th graders. The children were divided into three groups: class 1 received the school breakfast, class 2 received a syrup drink, and class 3 did not receive breakfast of any kind. Results found there were no differences between classes 2 and 3, therefore, in the end, they were combined and compared to the test group for reporting purposes. Approximately half of the children in the study had a weight-for-age less than 80% of the reference standard and were therefore classified as undernourished.

The *Wide Range Achievement Test* was used to measure math and spelling ability, although time constraints did not allow for reading data to be collected or analyzed. The children were studied for two semesters for the purpose of this research.

The results indicated that eating school breakfast increased attendance. However, Simeon suggests that the reason for increased attendance could be the impoverishment of the children: if they came to school, they would get breakfast because of the study. Many of these students were in situations where if they stayed home, they might not get food at all.

The results also showed that participation in the breakfast program led to greater achievement in math scores for participants than for the students in the control groups. However, no significant differences were seen in the spelling scores between the control and test groups of children.

Additional analyses of the data indicated that the improvements in arithmetic scores were independent of attendance. While it might be supposed that increased attendance alone would indirectly lead to improvements in arithmetic (more frequent classroom exposure would seem to increase learning), this further analysis indicates that something other than classroom attendance was improving the test scores. The possibility exists, therefore, that participation in the School Breakfast Program was a salient factor.

Powell et al. (1998) conducted a study examining the effects of breakfast on 2nd through 5th graders in sixteen rural Jamaican schools. Half of the 814 subjects were classified as undernourished and half were classified as adequately nourished. Youth in both groups were matched for school and class, and then assigned to either a control group or a breakfast group. After baseline data (height, weight, attendance, *Wide Range Achievement Test* scores) was obtained for each group, a breakfast program was implemented for the breakfast group, serving breakfast at the schools every day for a year. Children in the control group, however, were given a quarter of an orange, and given equal amounts of attention as the breakfast group.

Results revealed that youth in the breakfast condition showed small, but significant improvements in attendance and nutritional status compared to the control group. In addition, those eating breakfast gained an average of .25cm more in height over an 8-month period compared to children in the control

group. Children in the breakfast group also gained significantly more weight than control group youth. Improvement in test scores was found only among 2nd and 3rd graders in the breakfast condition, and only in the arithmetic component of the *Wide Range Achievement Test.* There was no significant improvement in the spelling or reading components.

Overall, the undernourished youth did not benefit more from breakfast than the adequately nourished children. The authors concluded that the school breakfasts contributed only slightly to improved achievement, attendance and nutritional status. They argue that greater improvements may occur in more undernourished populations. Results from Powell et al. were obtained using a well-designed study method, including large sample size and random assignment to conditions. However, using such a homogeneous (rural Jamaican) sample limits the applicability of their findings.

A study conducted by Murphy et al. (1998a) looked at how participation in the Universal Free School Breakfast Program affected academic and psychosocial functioning. The study focused on low-income children in grades 3–8 who were attending inner-city schools in Baltimore, Maryland, and Philadelphia, Pennsylvania. Students' math, science, social studies, and reading grades were collected before and after the implementation of the School Breakfast Program to measure student achievement. Results found that children who increased their School Breakfast Program participation were significantly more likely to increase their math grade as well. However, there were no significant differences found in student grades in science, social studies or reading.

Decreased rates of absenteeism and tardiness were also noted among the children who participated in the School Breakfast Program. In addition, this study measured depression using the Children's Depression Inventory (CDI); symptoms of anxiety (using the *Revised Children's Manifest Anxiety Scale – RCMAS);* and a parent-reported *Pediatric Symptom Checklist (PSC),* which identifies children with psychosocial dysfunction. The psychosocial tests indicated that children who sometimes or often participated in the School Breakfast Program had lower scores (although not significantly lower) on all of the tests—they were less anxious and were less likely to be identified as depressed or as psychosocially dysfunctional. Children who increased participation in the School Breakfast Program had significantly greater decreases in *RCMAS* scores compared with children whose participation in the program declined or stayed the same.

Children in the Baltimore sample were also assessed on hyperactivity using the Conners' *Teacher Rating Scale-39 (CTRS-39).* The findings indicated significantly higher (worse) scores for those who rarely ate breakfast compared to those students who ate breakfast sometimes or often (Murphy et al., 1998a). Although not all findings proved significant, this study concluded that the School Breakfast Program has a positive influence on the academic functioning and psychosocial functioning of students.

Murphy et al. (1998b) conducted a study that also examined the relationship between hunger and psychosocial function in low-income children. This study was a collaborative effort with the previously mentioned study by Murphy, et

al., yet the outcomes measured were more focused on hunger and its relationship to psychosocial dysfunction. The study population was selected from the Baltimore and Philadelphia public schools, grades 3–5 and 8.

Each child's hunger was assessed through an 8-item parent questionnaire developed by the *Community Childhood Hunger Identification Project (CCHIP).* The *Child Hunger Index Parent (or Child) Report (CHI-P/CHI-C)* was administered to measure association between the answers given by parent and child. Children were classified as "hungry", "at risk for hunger", or "not hungry." The *PSC* was used to assess psychosocial dysfunction; a *Child Behavior Checklist (CBCL)* was used to assess child behavior; the *CTRS-39* and *CTRS-39s Hyperactivity Index Scale* were used to assess hyperactivity and other behavior; and the *Children's Global Assessment Scales (CGAS)* were used to assess overall functioning.

Children classified as "hungry" or "at risk for hunger" were more likely to be clinically impaired than children classed as "not hungry." They were also more likely than children classed as "not hungry" to have behavior impairments. The *Hyperactivity Index* scores were significantly higher (worse) for children identified as "hungry," compared to children classed as "not hungry" and children who were "at risk for hunger." Psychosocial scores from the *PSC* test were significantly associated with hunger status and were higher (worse) for "hungry" children than for children who were not, although the results were not statistically significant. Tardiness and absenteeism rates were significantly higher among "hungry" children compared to children who were identified as "not hungry."

Overall, results from the study indicated a significant correlation between food insufficiency, classroom behavior, and psychosocial problems (Murphy, 1998b). The findings suggest that alleviating hunger can improve a child's psychosocial behavior. It could also be inferred that improved classroom behavior might lead to better performance in the classroom, although this study did not look specifically at academic achievement.

A similar study conducted by Kleinman et al. (1998) also looked at the effects of hunger on psychosocial and academic performance. The *Community Childhood Hunger Identification Project (CCHIP)* questionnaire and *Pediatric Symptom Checklist (PSC)* were used to measure psychosocial dysfunction. In this study, the sample included 720 households in the Pittsburgh, Pennsylvania area. Of those households, 328 had a school-age child (6–12 years old) present.

Of the school-age sample, 56 were classified as "hungry," 161 were classified as "at risk for hunger," and 111 were classified as "not hungry." The results of the study revealed that children identified as "hungry" had more frequent incidences of psychosocial dysfunction as measured by the PSC form (21% of children classed as "hungry," 6% of children who were "at risk for hunger," and 3% of children who were classed as "not hungry"). Children who were classed as "hungry" also displayed more irritability and aggressive behavior than did low-income children who were classed as "not hungry." The study found that hunger status was somewhat related to past academic failure (i.e., repeating a grade) and that children classed as "hungry" were more likely than other children to be receiving special education services such as tutoring.

Although associations between hunger and psychosocial and academic prob-

lems in low-income children can be found, it is important to recognize other possible contributing factors. Kleinman et al. point out that there are "multiple stressors" in low-income families that could increase their risk of developing psychosocial problems compared to children from more socio-economically advantaged families. These studies point to the need for researchers to sort out the numerous issues facing children from low-income families and to find ways to determine how hunger and other factors affect academic achievement. In addition, studies on children from other economic backgrounds are needed to determine what effect the School Breakfast Program has on their learning and academic performance.

Dickie and Bender (1982) conducted one such study. Using 55 London boarding school students (average age 17 years old), they attempted to show that pupils who habitually omit breakfast show decreased school performance versus students who normally consume a morning meal. Students were divided into an experimental group and control group. Both groups were tested on sentence verification, addition, and short-term memory on three consecutive days in order to establish baseline data. The following week the experimental group was instructed to omit breakfast, while the control group ate breakfast as usual. Both groups were again tested on the same tasks. In this retest phase, no significant differences were found on test performance between the two groups. However, due to the small sample size (55 students) and average age of the sample, it is hard to generalize these findings.

The School Breakfast Program and Short-term Effects on Cognition

In order to explore the possible short-term effects of eating school breakfast, several studies on cognition have been published. Simeon et al. (1989) examined the effects of missing breakfast on cognitive functions of three nutritional groups (n=30 for each group) of children aged 9–10½ years old in Jamaica: stunted children (identified as –2SD of the National Center for Health Statistics references), non-stunted controls, and previously severely malnourished children (identified as having been admitted to the hospital for severe malnutrition during the first two years of life). The investigators felt stunting was the best indicator for the duration of undernutrition experienced by the child. Also, for further analysis, children were divided into additional groups, such as wasted and non-wasted.

Wasting is defined as weight-for-height 90% below the expected value and is an indicator of recent nutritional experiences. These children were admitted to an overnight ward on two occasions. The following morning of their stay, the children were given a standard breakfast. The control groups were given a cup of tea sweetened with aspartame. Shortly after breakfast, cognitive tests were administered. Cognitive tests included three subtests of the *Wechsler Intelligence Scale for Children (Wechsler):* arithmetic, digit span and coding. In addition, two subtests from the *Clinical Evaluation of Language Functions (CELF)* were used which included the fluency and listening comprehension subtests. The *Matching Familiar Figures Test (MFFT)* and the *Hagen's Central-Incidental task (HCI)* were also used.

The results of the testing indicated that the control groups, who received only tea for breakfast, did not perform significantly worse on the cognitive tests than those who received breakfast. On the other hand, the previously malnourished children and the stunted children performed significantly worse compared to the non-stunted children on the fluency and coding tests. The control group actually performed better than the other groups on the arithmetic and the *MFFT* easy-items test.

When wasting was used as a factor, no significant differences were found in arithmetic, fluency, coding, or the digit-span forward tests. However, wasted children performed significantly worse in the fasted states in the digit-span backwards test and the *MFFT* easy-items test. No significant differences were seen on the listening comprehension test, the *MFFT* hard-items test, or the *HCI* task. The control group did not experience any adverse effects from missing breakfast on any of the cognitive tests. However, wasted children were adversely affected in several of the tests, as mentioned, regardless of the nutritional group that they were assigned to. The authors concluded that undernourished children were more susceptible to the adverse effects of skipping breakfast (Simeon et al., 1989).

Lopez et al. (1993) examined the cognitive effects of skipping breakfast among 279 4th, 5th, and 6th graders living in the outskirts of Santiago, Chile. All subjects were considered low- income, and ranged in age from 8 to 10 years old. Subjects were composed of 106 nutritionally normal children (those with a Height/Age [H/A] and Weight/Age [W/A] between 95% and 115% of the 50th percentile of the National Center for Health Statistics [NCHS]). In addition, 73 wasted children (W/H < 91% of 50th percentile, by NCHS standards), and 100 stunted (H/A < 92% of 50th percentile, by NCHS standards) were included in the subject sample. Subjects were then randomly assigned to a fasting condition or a breakfast condition. Those in the fasting condition had not eaten for 14 hours (including the previous night, time spent sleeping, and the morning) prior to being assessed in the morning. Those in the breakfast condition had also fasted for 14 hours, but were fed a standard breakfast prior to the morning assessment.

Three specific cognitive tests were employed in the study: a memory test, domino test, and attention test. The memory test was a modification of the *WISC* digits subtest, having students observe a screen display of progressively longer, randomly generated digit strings. Pupils were then supposed to reproduce each sequence on the screen. The domino test had students fill in the blank pieces after seeing a screen with a logical arrangement of domino pieces. Finally, the attention test had students observe a screen showing three consecutive series of 24 geometrical figures, then quickly recognize key figures among the series.

Analysis of the results found no consistent link between study condition and cognitive test performance for any of the three nutritional categories of pupils. Stunted children in both the breakfast and fasting condition obtained significantly lower scores in the attention test. Overall, however, the results suggest that breakfast consumption does not affect cognitive test performance when children are motivated to do well on short-term tasks.

One problem with this study was the fact that the tests were considerably motivating for the students, perhaps because they were administered via computer. It would be unwise to generalize the findings to conditions where students are less motivated to succeed, such as routine and natural classroom exercises. In addition, the tests only measured short-term test performance. Long-term performance should have been measured as well, in order to examine the lasting effects of breakfast.

In congruence with the aforementioned Simeon et al. study, Chandler et al. (1995) studied the short-term effects of receiving school breakfast on children's cognitive functions. The authors utilized a digit span test, visual search test, verbal fluency test, and a speed of information processing test to assess cognitive functioning. The study's population included Jamaican children in grades three and four with subgroups of undernourished children, identified as $\leq$ -1 SD of the National Center for Health Statistics reference data and adequately nourished children. The study used a crossover design so that each child was compared with him/herself after receiving or not receiving breakfast. A standard breakfast was administered at school while the control group was given a quarter of an orange. Cognitive testing began a half hour after breakfast was given.

The results of the testing mirrored the results from the study conducted by Simeon et al.: adequately nourished children did not exhibit a significant improvement in the cognitive test scores after receiving breakfast, but the undernourished children performed significantly better on the verbal fluency test. There were no differences seen in the other cognitive tests in the various groups of children (Chandler et al., 1995).

This study was conducted in a less controlled environment than the study conducted by Simeon, et al. The children were told not to eat after their evening meal the day before the testing, but they were not under observation. Despite this, results were similar to the findings of Simeon et al.

The cognitive benefits of school breakfasts compared to home-prepared breakfasts have also been examined. Worobey and Worobey (1999) investigated the cognitive benefits of school breakfasts in preschools. Using predominantly Caucasian middle-class children between three and five years old, the authors assessed changes in cognitive test performance over a six-week period of school breakfast administration. An experimental group consisting of pupils participating in a School Breakfast Program was compared with a control group of children who consumed breakfast at home.

Prior to program implementation test results were obtained for both groups in order to establish baseline data. No significant performance differences were found between groups in the initial test phase. After six weeks, students in the School Breakfast Program group displayed superior performance on two of four cognitive tests compared to the control group. It was noted that the two tests in which participants scored higher during the retest phase were visual perception and discrimination and classification skill assessments administered via computer. According to the authors, it is possible that compared to pencil and paper tests, computer assessments evoke a higher degree of motivation

among students, enhancing the effects of a nutritious breakfast. However, the small number of subjects (16) used in this study makes it hard to generalize the findings, as does the fact that the subject sample was composed of predominantly Caucasian middle class children.

The impact of school breakfast on cognitive functions and mood effect has also been studied (Cromer et al, 1990). Cromer et al looked at a group of ninth grade adolescents from a generally middle class background in Ohio. The cognitive tests used in this study differed from Chandler, et al. and Simeon, et al. studies. They included the *Peabody Picture Vocabulary Test-Revised (PPVT-R)*, the *Rey Auditory-Verbal Learning Test (Rey AVLT)*, the *MFFT* (used in the Simeon et al. study), the *Continuous Performance Test (CPT)*, and the *State-Trait Anxiety Inventory for Children (STAIC)*. The students were admitted to a research center the night before testing in order to control their morning intakes. The test group was given a standard breakfast while the control group was given diet gelatin and a powdered drink sweetened with saccharin. Cognitive and metabolic testing began one hour after the students received breakfast. The results of the testing indicated there were no significant differences in cognitive functioning between the group that received the standard breakfast compared to the group that received the low calorie breakfast (Cromer et al., 1990).

Unlike the previously mentioned studies, there were no children in this group who were nutritionally at risk. In addition, the subjects used were slightly older than the subjects in the other studies. It may be that older children are not as affected by the absence of breakfast, or possibly children with adequate nutrition are not as susceptible to the short-term effects of missing breakfast.

Building on the previous study by Chandler et al., Grantham-McGregor and Walker (1998), two of the investigators in the Chandler et al., study, made use of the crossover design again in order to look at the effects of school breakfast on cognitive function and classroom behavior in adequately nourished and undernourished 8–11 year olds in grades three and four in four Jamaican schools. Cognitive function tests included visual search, digit-span forwards, categoric fluency, and speed of decision making. Behavior was measured by investigator observation in the classroom for both control and test groups. After the children arrived at school, a standard breakfast was given to the treatment group while only a slice of orange was given to the control groups.

The results were similar to previous studies. Specifically, undernourished children performed significantly better on the fluency test after they had received breakfast, but the adequately nourished children showed no significant change in scores. No other significant differences were seen in the other cognitive test scores for either group. The classroom behavior of the children in two of the four schools actually deteriorated after the children had received breakfast. The children in one of these schools talked more during classroom instruction, while children in the second school were less attentive during the set-to-task. Only one of the four schools experienced a significant increase in attention to task after eating breakfast.

The investigators posited that behavior could be influenced by the structure of the schools. The four schools did not have the same classroom organization,

which made direct comparisons difficult. In some of the schools, children shared desks, some classrooms had more than one class in the room, and some classrooms were very noisy. Differences in classroom facilities such as these could certainly have an effect on behavior (Grantham-McGregor, 1998). In any case, this decline in behavior after breakfast appears to have been an isolated event, as no other studies reported similar findings.

The previously mentioned studies all examine the effects of breakfast omission on cognitive functions. However, it is difficult to draw one conclusion regarding the effects of breakfast omission on cognitive functions due to the varying assessments, conditions, and results of the aforementioned studies. There is a need for studies in which testing conditions are equal, control over children's dietary intake before they arrive at school exists, and a standard group of cognitive tests are employed. These consistencies would make studies in this area more comparable to one another, and perhaps lead to some definitive answers on what the short-term cognitive effects of breakfast are for children.

Timing, Setting, and Type of Breakfast Effects

Vaismar and his colleagues took the question of cognitive effects of breakfast one step further in examining the effects of breakfast timing on cognitive functions in Israeli elementary school children. The children came from a variety of socio-economic backgrounds, and ranged in age from 11–13 years old (Vaismar, Voet, and Vakil, 1996). The cognitive tests used included the *Rey Auditory-Verbal Learning Test (AVLT)*, the revised memory subtest form the *Wechsler Memory Scale*, and two versions of the *Benton Visual Retention Test*. One-third of the subjects were controls and were not given any information regarding breakfast habits. The test group was told not to eat breakfast at home before coming to school and they either received breakfast at school or breakfast was omitted.

Children who ate breakfast at school scored significantly higher than those who ate breakfast at home or who did not eat breakfast at all in most of the tests, including five subtests of the *Rey AVLT* and both the *Wechsler* test and the *Benton* test. In addition, children who ate breakfast at school scored significantly higher than kids who ate breakfast at home in the delayed recall and the temporal order subtests of the *Rey AVLT*. There were no significant differences between children who did not eat breakfast at home compared to those who ate it at home or school in the delayed recall, immediate learning and temporal order subtests of the *Rey AVLT*.

Overall, the results indicated that the children who ate breakfast at school had significantly higher cognitive test scores compared to those who ate breakfast at home or had no breakfast at all. The investigators argued this indicated that breakfast might have positive short-term cognitive effects. No connections were made between children from different socio-economic backgrounds and cognitive abilities. A problem with the study design was that the children who ate breakfast before they came to school undoubtedly had different amounts of different foods. The need to test breakfast timing and short-term cognitive effects may be important; however, a well-designed format is also necessary.

A 1995 review of studies looking at the effects of breakfast on cognition indicated that, regardless of the research setting of the study, undernourished, at risk children showed improvements in cognitive performance when provided with proper nutrients (Pollitt, 1995). Chandler et al. (1995), Grantham-McGregor et al. (1998), Murphy et al. (1998ab), and Kleinman et al. (1998) supported this finding. Although the results are not as clear for well-nourished children, reports from schools indicate that benefits like decreased tardiness rates and improved socialization among students would indicate a positive effect of the School Breakfast Program. A more recent review of some of the breakfast studies by Pollitt and Matthews (1998) concluded that school breakfast increases school attendance and contributes to a healthy diet.

In general, there do not seem to be any adverse effects on children who eat breakfast at school. The studies reviewed in this paper would indicate that the School Breakfast Program does have positive effects such as decreases in absence/tardiness rates (Meyers et al., 1989; Murphy et al., 1998ab; Sampson, 1992; Wahlstrom, 1997; and Cook et al., 1996). Several of the studies indicated a significant improvement in math scores (Simeon et al., 1998; Murphy et al., 1998a; and Sampson, 1992) with two of the reports finding no significant improvements (Meyers et al., 1989, and Simeon et al., 1989). In addition, three of the cognitive studies that looked at the effects of breakfast on verbal fluency found that breakfast eaters' scores significantly improved on that cognitive test (Simeon et al., 1989; Chandler et al., 1995; and Cromer et al., 1990). The report by Wahlstrom et al. (1997) indicated that children's readiness to learn was improved by School Breakfast Program participation.

The studies cited in this report provide a good base of evidence from which to build support for the School Breakfast Program and some of the benefits it provides for participating children. The overarching themes of School Breakfast Program research are that school breakfast programs participation may reduce absence and tardiness rates, increase cognitive and academic functioning, and promote social interaction among youth.

It may be the case that school breakfasts, *per se,* are not contributing to these benefits (Murphy et al., 1998). Perhaps breakfast programs increase attendance because children have no other routes to getting fed. Attendance may be the influencing factor, rather than breakfast. The increase of social interactions among breakfast consumers may lead to better behavior and academic functioning throughout the day. However, some argue that as long as the program proves beneficial to students, the exact nature of the relationship between breakfast and positive outcomes should hardly matter to schools, parents, and children.

The benefits of the School Breakfast Program are more salient among undernourished children who are living in poverty. It is therefore important to look closely at implementing the breakfast program in the schools that need it most. Youth who are undernourished will be less likely to exploit the broad range of academic benefits offered by our schools. In turn, this contributes to them being less likely to become members of the work force and positively adding to society and economy as a whole. Therefore, the effects of undernutrition cost the public in the form of special education services in schools, welfare, and lost

and lost community contributions (Center on Hunger, Poverty, and Nutrition Policy, 1998).

Future research should focus on measuring the effects of nutritious School Breakfast Program meals in well-designed studies that include diverse groups of children from both low-income and economically advantaged backgrounds. Outcome measures such as academic performance, socialization, attendance, behavior, and attentiveness should continue to be studied considering their relevance to the learning environment.

INTRODUCTION

In 1966, under the Child Nutrition Act, the federal School Breakfast Program was started as a pilot project to provide nourishment for children, primarily those students living in poverty. The program was established in response to concerns about how malnourishment, particularly in students from low income households, affected attentiveness and academic performance in schools. The combination of the National School Lunch Program, which had been established twenty years earlier, and the School Breakfast Program, was intended to provide a coordinated and comprehensive child food service program in schools.

For several years after the School Breakfast Program became a permanent program in 1975, the number of schools and students participating in the program increased steadily. Unfortunately, the program, which was declared important and needed by national education leaders and legislators, continued to be unavailable in numerous schools and districts that served large populations of low income families, due to a failure of implementation at the local district level. Therefore, even though participation was steadily increasing, the program was not reaching its full potential.

In 1989, the Children Nutrition Act was amended to specifically expand the scope of availability of the School Breakfast Program in public schools across the country. The goal of this piece of legislation was to provide a nutritious breakfast to low income children who might not otherwise receive one. According to one researcher, although many children in need of such nourishment arrived at school without having breakfast (Sampson, et al, 1995), few participated in the program. Nationally, Rossi (1998) reported that in schools where the program was available, only 78% of children who qualified for free or reduced-price meals were certified to receive meal subsidies, and of those certified, only 37% participated in the breakfast program. The aggregated effect was that only 29% of eligible children were eating school breakfasts.

The legislation requires that participating schools must serve breakfasts that meet federal nutrition standards, and must provide free and reduced-price breakfasts to eligible students. Participating schools receive cash assistance from the U.S. Department of Agriculture for each meal served that meets program requirements. For the 2000–01 school year, school food authorities were reimbursed at the following rates (federal reimbursement):

- Free breakfasts $1.12 each
- Reduced-price breakfasts $ .82 each
- Full-price breakfasts $ .21 each

Schools may qualify for higher "severe need" reimbursements if a specified percentage of their meals are served to students eligible for free or reduced-price meals. Nationwide, about 65% of the schools serving breakfast under the

School Breakfast Program receive severe need payments. Severe need reimbursement rates are as follows:

- Free breakfasts $1.33 each
- Reduced-price breakfasts $1.03 each
- Full-price breakfasts $ .21 each

According to federal guidelines, schools may charge no more than $.30 for a reduced-price breakfast. However, schools are allowed to set their own prices for breakfasts served to students paying full price.

The Fast Break to Learning School Breakfast Program, a universally free breakfast program, was implemented in Minnesota in 1999 by the Ventura administration. Although Minnesota schools have been serving school breakfast for nearly a decade, this was the beginning of the state's experiment with the "universally free" concept. The intent of the program was to offer breakfast at no charge to all students, rather than just to low income students.

Prior to 2001–02, the program was designed as a grant program, and participating schools received two grant payments during the year to cover their costs of participating in the program. These payments were in addition to any federal or state assistance they were already receiving. The assistance was designed to reimburse schools for breakfasts served to students receiving reduced-price and full-price breakfast, since they were already being reimbursed for those students eligible for free breakfast. Starting in 2001–02, the program was changed from a grant program to a reimbursement program; schools are now funded only for breakfasts that are served and reported.

Methodology

For the purposes of this study, schools were categorized as either *Fastbreak* schools or *Control* schools, depending on whether or not the schools chose to participate in the Fast Break to Learning Breakfast Program. A total of 515 schools met state requirements for eligibility for participating in the program in 2000–01. However, of the schools that were eligible, only 320 chose to participate in the program *(Fastbreak* schools). The remaining 195 schools served breakfast to students, but not as part of the Fast Break to Learning Breakfast Program (*Control* schools). Three data sources were used for this study: mail surveys, in-school interviews, and data files.

Mail Surveys

The first mail survey had two forms: one was mailed to principals, and the other to food service personnel at the *Fastbreak* and *Control* schools. The Department of Children, Families & Learning mailed the surveys to all 515 qualifying schools (i.e., all of these schools met the state requirements for participation in the Fast Break to Learning Program in 2000, including 195 *Control* schools, and 320 *Fastbreak* schools). Survey content paralleled last year's study, including questions regarding participation in, administration of, and perceived benefits of and barriers to the school breakfast program. Data were collected via a mail survey from February to April 2001. Survey collection was

closed for tabulation with 490 usable responses from food service personnel (a 95% response rate), and 477 usable responses from principals (a 93% response rate). The School of Public Health, Division of Epidemiology at the University of Minnesota completed the data entry. The Office of Educational Accountability coducted the data analysis.

A second mail survey, consisting of two forms, was later sent to principals of participating schools inquiring specifically about health and discipline issues at their school. Approximately 80 schools participated in this second mail survey. The summary data requested in these two forms were reported on two days each week, from April 25 through June 6, 2001, or the last day of school (whichever was earlier). Depending on vacation dates and end of year dates, schools gathered data for periods ranging from 10 to 14 weeks. Additional data were gathered using the second (identical) survey, which was sent out in the fall of the 2001–02 school year to the same schools that participated in the first survey. Again, from November 13 through December 6, participating schools gathered data on student health and discipline issues. The Office of Educational Accountability at the University of Minnesota completed the data collection, data entry, and analysis of these data.

In-school Interviews

Although quantitative data help to describe how the School Breakfast Program is working in terms of participation rates or student achievement, qualitative data can assist in painting an overall picture of what is really taking place at the school level. This qualitative data includes what teachers, principals, and food service staff think of the program and its impact on student learning and on the classroom environment. In order to obtain qualitative data for this study, in-school interviews were conducted. Due to time and budget constraints, a small sample of eleven schools was chosen for this aspect of the research.

In order to get a representative sample of schools, a stratified sample was drawn, based on participation rates and the timing of breakfast in the school. School breakfast program participation data from the 2000–01 school year were used to group the schools in the study into either of two participation levels. Overall, the average participation rate in the school breakfast program across the state was 43%. Therefore, schools with 43% or higher participation rates were categorized as *high participation* schools, while schools with student participation below 43% were categorized as *low participation* schools.

Whether schools serve breakfast before or after school starts is a concern for policymakers, administrators, and parents. Some argue for serving breakfast after school starts because this increases participation in the School Breakfast Program. However, some teachers and parents worry that serving breakfast after the start of the school day leads to a loss of valuable instruction time. Therefore, the time when breakfast was served at a school site also affected the categorization of the schools. This made it possible for the data analysis to determine whether the time at which breakfast was served had educational or other programmatic implications for the schools. Schools were selected so as to obtain a sample representing several possible school breakfast program situations.

Of the eleven schools included in the interview portion of the study, three schools served breakfast before school started and had low student participation; three served breakfast before school started and had high participation; and another three served breakfast after school started and had low participation. The remaining two schools served breakfast after school started and had high participation in school breakfast (these were the only two schools in the sample with these characteristics). These two schools reported serving breakfast after the start of the school day, but acknowledged that they also served breakfast before school started as well.

In-school interviews were conducted from November 28, 2001, through January 10, 2002. At each participating school, three teachers, one food service staff person, and the principal of the school were interviewed. The majority of interviews took place face-to-face in the schools, but three of the interviews were conducted over the phone due to scheduling conflicts and/or the school's location in the state. Participants were asked a variety of questions, including questions about the timing and logistics of breakfast program administration in their school; the demographics of student participation; and the effects of the breakfast program on the school day. All participants were asked the same set of questions without regard to their job title. Interviews were conducted and the resulting data tabulated and analyzed by the Office of Educational Accountability at the University of Minnesota.

Data Files

The third data source consisted of two large-scale data files. The first of these was the test file containing *Minnesota Comprehensive Assessment* achievement data for Minnesota schools in 1998–99, 1999–00, and 2000–01. Third grade mathematics and reading scores and 5th grade mathematics, reading, and writing scores were used for analysis. These data were provided by the Department of Children, Families & Learning and were analyzed by the Office of Educational Accountability.

The second data file used was a student enrollment file, providing enrollment and attendance data on Minnesota schools from 1998–01. This file was also provided by the Department of Children, Families & Learning and analyzed by the Office of Educational Accountability.

Purpose

The primary purpose of earlier child nutrition legislation was to provide nutritious breakfasts to low income children who might not otherwise receive breakfast. In contrast, recent legislation focuses not only on providing necessary nutritional assistance to school-age children, but also on documenting the return on education dollars spent on programs such as the School Breakfast Program (often measured in terms of student achievement scores or other parallel student outcomes). In essence, Minnesota policymakers want to know "how much bang they are getting for their educational buck."

Although it is relatively easy to come up with a "measure of success" based upon only one easily measured outcome variable (such as 3rd grade math

scores), many educators and researchers argue that judging programmatic success using just one measure does not follow sound measurement and evaluation practices. *Many* student outcomes, including those that are not academically based, ought to be considered to ensure an accurate portrayal of program status. Analysis of the effects of eating school-provided breakfast on a student's learning environment and success is no exception: multiple measures should be used in determining the program's effectiveness.

In this year's report, the Office of Educational Accountability decided to build upon early work done at the Center for Applied Research and Educational Improvement (CAREI) in the mid-1990s. In addition to continuing to analyze the impact school breakfast has on academic achievement and attendance, this year's study also analyzed the effects the Fast Break to Learning Breakfast Program had on student behavior by conducting in-school interviews with school personnel and analyzing data from health and discipline surveys that were mailed to numerous school sites statewide. By expanding on past research to include additional quantitative and qualitative data, a clearer picture of the Minnesota Fast Break to Learning Breakfast Program will emerge.

PROGRAM ADMINISTRATION

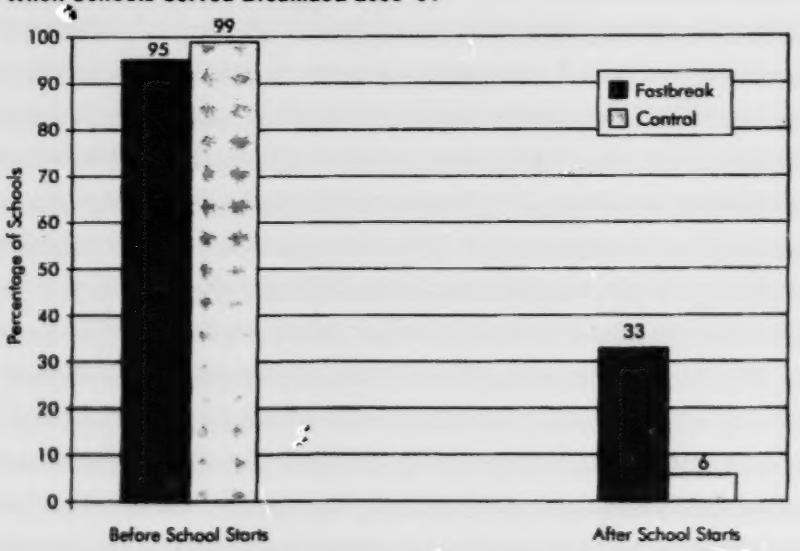
Although the Fast Break to Learning Breakfast Program is available and administered statewide, the specifics of the program differ from one school to the next. Minnesota schools have been offering breakfast to students for a number of years; however, only recently have the specifics of the program been considered. Aside from federal nutrition guidelines, there are very few guidelines imposed on schools as to how to implement, administer, or promote the breakfast program in their school.

In order to make the school breakfast program work best for a particular school, there is a need for input from many people: not only from principals, who administer the program, but also food service personnel, who prepare and serve breakfast, and teachers, who interact the most with the students. For this reason, data were collected from all three of these groups. Principals and food service staff were sent mail surveys and were also part of the in-school interviews. Teachers took part only in the in-school interviews. In future reports, it would also be beneficial to include personal interviews with parents and students regarding their perceptions of the School Breakfast Program, although this was not possible for this year's report. (When interpreting the results of this research, it is important to consider that the mail survey sample consisted of 515 participants, while the in-school interview sample consisted of 55 participants.)

Participants were asked a variety of questions, including the timing and logistics of breakfast program coordination and administration in their school, their opinions of the benefits and barriers to the program, their perception of which students did not participate and why, and how having the breakfast program affected the learning environment at their school. While there were two separate and slightly varying forms for the mail survey (one for food service staff and one for principals), interviewees for in-person interviews were asked the same set of questions no matter what their position in the school.

The timing and location of breakfast at the school were the first administrative issues addressed. Overall, the vast majority of schools reported that breakfast was served before school started. Figure 1 shows when *Fastbreak* and *Control* schools served school breakfast. Although both groups were significantly more likely to

Figure 1
When Schools Served Breakfast: 2000–01



serve breakfast before the start of the school day, one-third of *Fastbreak* schools reported that they serve breakfast after school starts. It is important to note that a number of the schools that served breakfast after school started actually reported serving *both* before and after the start of the school day.

When asked where breakfast was served, over 90% of the mail survey respondents reported that breakfast was served in the cafeteria or lunchroom rather than the classroom. When asked why they served breakfast in the cafeteria/lunchroom, most staff interviewed seemed somewhat surprised and responded that it was the only thing that made sense to them. Overwhelmingly, teachers interviewed were not interested in having food in the classroom, and food service personnel thought the food should be served where it was prepared—in the cafeteria/lunchroom.

Although the schools that served breakfast after school started were serving primarily in the cafeteria, there were some schools incorporating breakfast into the classroom. One school had the kindergarten and first grade classes eat in the cafeteria, but the other grades took their breakfast back to the classroom to eat. One reason cited for having some students eat breakfast in the classroom while others ate in the lunchroom was that not all of the students would fit in the cafeteria at the same time. Another school served breakfast after school started in the classrooms because there was a Physical Education class in the gym/cafeteria first thing in the morning. The general consensus however, was that it was more convenient to serve breakfast in the lunchroom or cafeteria because it didn't leave a mess in the classrooms. Those schools that had students eat in the classroom seemed to be doing so because their cafeterias were either too small or were already being used for instructional purposes first thing in the morning. None of the staff interviewed stated a preference for serving breakfast in the classroom rather than the cafeteria; instead it was an issue of necessity when it was done in this manner.

Considering the large number of schools that reported serving breakfast before school, it is not surprising that the most commonly reported student activity during breakfast was socializing. However, even schools that reported serving breakfast *after* school started were more likely to use breakfast time to socialize than for any other planning or instructional purpose.

Table 1
Activities Taking Place During Breakfast: 2000–01

	Total	Fastbreak	Control
Socialize	95%	94%	97%
Take attendance	14%	16%	10%
Make announcements	13%	17%	7%
Explain the day's schedule	8%	9%	6%
Discussion	6%	9%	2%
Book read aloud	6%	8%	3%
Assignments returned	6%	6%	5%
Other	17%	21%	9%

At the majority of sites, the decision whether to participate in breakfast was left to the student. However, there were some schools where entire classes ate breakfast together (including the teacher). Some served breakfast before school started, while others served breakfast in the cafeteria immediately after the start of the school day. Schools that encouraged eating together generally had higher participation rates than schools that left it to

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the student's discretion whether to eat breakfast. Not surprisingly, teachers who ate with their students, or at least accompanied them to the cafeteria/lunchroom, also had a much more accurate picture of which students were eating breakfast in their class or school building. One teacher who ate with her class commented, "It's good for students that have to get on the bus very early, and it is a wonderful opportunity for us to visit with one another as a class."

When asked if eating breakfast during the school day took away from instructional time, teachers gave a variety of responses. According to some respondents interviewed, there was resistance to the program initially due to this concern. Some teachers expressed the fear that the breakfast program would cut into precious instructional time. However, after the implementation of the program, most teachers agreed that the time breakfast took away from class time was more than compensated for by greater student attentiveness and readiness to learn after eating breakfast. One teacher commented that serving breakfast to students in the morning took *less* time away from instruction because, before the breakfast program, she had to interrupt the whole class at least once a day to take an individual student or two to the cafeteria for a snack because they had not eaten anything that day. With the breakfast program in place, all students were fed in the morning and consequently could make it until lunchtime, allowing for a more productive morning instructionally.

On the mail survey, when asked if the breakfast program took away from the instructional day, 24% of the food service staff and 18% of the principals said this was still a barrier to the program in their school. However, there were no signs that this particular barrier negatively impacted participation in the breakfast program. Student participation rates were as high, or higher, at the schools where staff reported that this barrier existed as they were at schools where it was not believed that the breakfast program took away from instructional time.

Another timing issue involved how long it takes to administer the program (serve breakfast) every morning. On average, respondents reported that they could feed all their students breakfast in about 20 minutes. Several teachers commented during interviews that the initial time in the morning was seldom productive instructional time anyhow because students were excited and wanted to visit with their friends. Therefore, many believed that the minutes designated for breakfast could be used as productive social time. This allowed students time to visit with their friends and prepared them for a morning of learning. None of the interview respondents commented that breakfast took too much time out of the school day. In fact, more teachers argued that students didn't have enough time to eat breakfast, and that breakfast time should actually be extended.

According to school staff interviewed, schools served a variety of foods for breakfast. The majority reported that meals were prepared on-site and included both hot and cold selections. While some schools had a set breakfast each morning, most schools had several options from which students could choose so long as their selections met federal nutrition guidelines. There were a few schools that served primarily prepackaged foods. These were generally larger schools, or schools without appropriate on-site kitchen facilities. Most schools, however, boasted about their "home-cooked meals." One principal mentioned that breakfast participation was noticeably higher on days when there was

"something baking" in the kitchen.

Although teachers voiced some concerns about the sugar or fat content of the food selections, most believed that students really liked what was served. However, at a couple of schools culturally sensitive menu planning was a concern. For example, at one school with a large Hmong population teachers believed that many students did not participate in breakfast because they were not accustomed to the food choices. They found that even students who had not eaten would go without rather than eat what was served. In some cases it was a dietary concern. For example, there were concerns about lactose intolerant students, since milk and yogurt seemed to be staples of the breakfast menus.

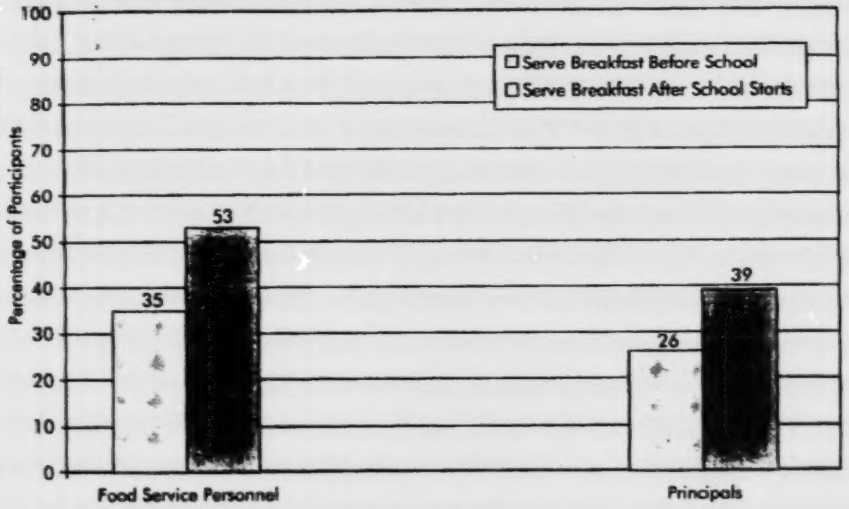
At some schools the menu was determined at the school level, but in other cases the menu decisions were made at the district level for all the participating schools. Food service personnel mentioned during interviews that even when the decisions were made at the district level they usually had some input in menu planning. Therefore schools could, in many cases, make accommodations for the specific student populations in their schools if they are aware of dietary concerns. Food service staff reported that they try to track what things the students like and dislike, and either make changes to their menu or suggestions to the district. In some smaller schools, food service staff reported they made numerous accommodations for special dietary requirements or food allergies. Knowing each student personally, as many do in smaller schools, made this possible. Culturally sensitive menu planning is an issue not likely to disappear as students in Minnesota schools continue to become more diverse.

Finally, respondents were asked about the benefits and barriers of the School Breakfast Program. When asked about barriers to implementing the program, approximately one-third of respondents agreed that there were barriers to implementing the breakfast program in their school. The barrier most frequently mentioned by principals and food service personnel was bus schedules. Many teachers also argued that participation rates would increase if students could get to school earlier. The other barriers mentioned were: lack of time before school starts; a need for additional staff; and the perception that school breakfast is only for students eligible for free or reduced-price meals.

Food service staff were more likely than principals to think there were barriers to implementing the program. This is not surprising, since they are the most involved on a daily basis. Respondents at schools where breakfast was served after the start of the school day were more likely to report barriers to implementing the program than were respondents at schools where breakfast was served before school started (Figure 2, p. 29).

When asked about benefits, the vast majority of respondents (over 90%) either agreed or strongly agreed with the statement, "There are benefits to the school for providing the school breakfast program." The benefit cited most frequently was that the breakfast program provided breakfast to those students who may have not have gotten breakfast otherwise. There were also several teachers who mentioned that students were more attentive, made fewer visits to the nurse, and had an opportunity for socialization due to the breakfast program. The

Figure 2
Percentage Who Think There are Barriers to Implementing the Breakfast Program, by When Breakfast was Served: 2000–01



benefits of the School Breakfast Program cited were similar whether the respondent was in a *Fastbreak* or a *Control* school.

While the administration of the program varies somewhat from school to school, there were some common threads. The majority of schools provided breakfast before school started. Most served breakfast in the lunchroom or cafeteria, and had a variety of foods from which students could choose. Teachers, food service personnel, and principals were overwhelmingly in favor of the program and seem to be doing whatever it takes to make the program a success at their school.

PARTICIPATION

Historically, participation rates in the School Breakfast Program have been lower than participation rates in the school lunch program. Simply offering a breakfast program does not guarantee student participation. Getting the word out about the availability of the program and convincing parents and students to participate has proven challenging for some schools. In Minnesota, participation rates in the breakfast program have been gradually increasing since the Fast Break to Learning Initiative was introduced. The participation rates discussed in this section are for those public schools in Minnesota that served breakfast to students during the 2000–01 school year, either free of charge *(Fastbreak)* or on a sliding fee scale *(Control)*.

Overall, participation rates increased from 32% in 1998–99 to 43% in 2000–01. The increase was most significant at *Fastbreak* schools where participation rates jumped from 39% in 1998–99 to 54% in 2000–01. On the other hand, participation rates at *Control* schools have remained approximately the same since 1998. As illustrated in Figure 3, students in *Fastbreak* schools participated at a significantly higher rate than students at *Control* schools. Figure 4 (p.32) shows a breakdown of participation rates for students eligible for reduced-price lunch and for students eligible for free lunch. For all three years, students eligible for free lunch have had the highest participation rates. While nationally only 37% of students eligible for meal subsidies participate in the school breakfast program, in Minnesota the percentages are closer to 50% for students eligible

Figure 3
Student Participation in the School Breakfast Program in *Fastbreak* and *Control* Schools: 1998–01

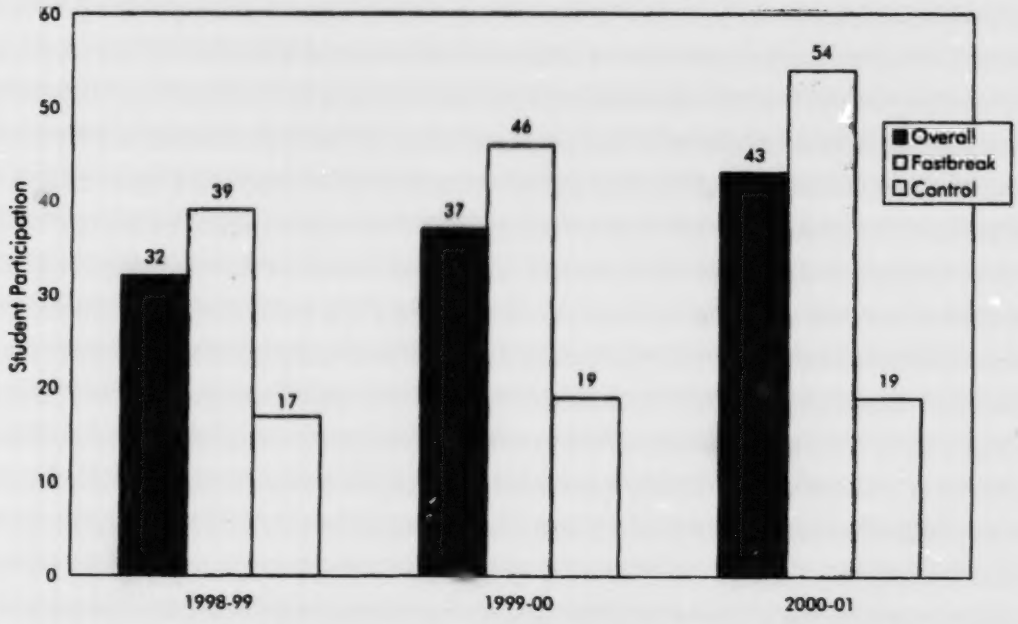
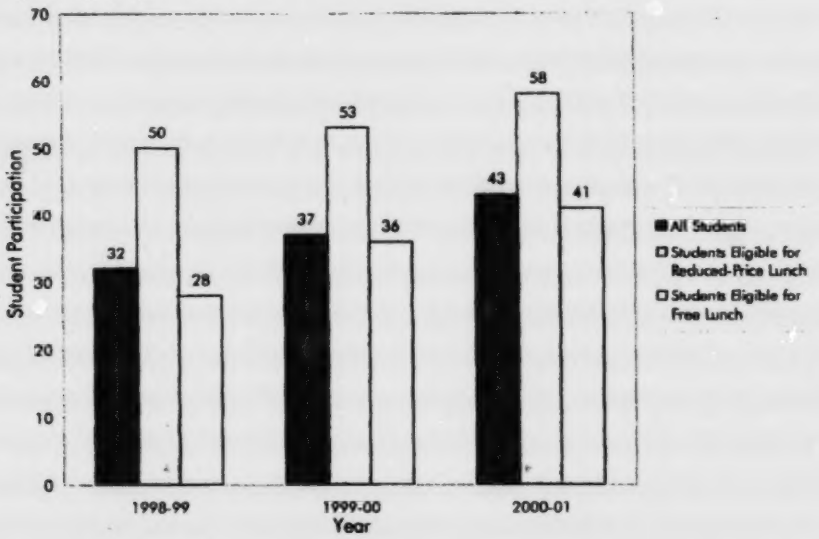


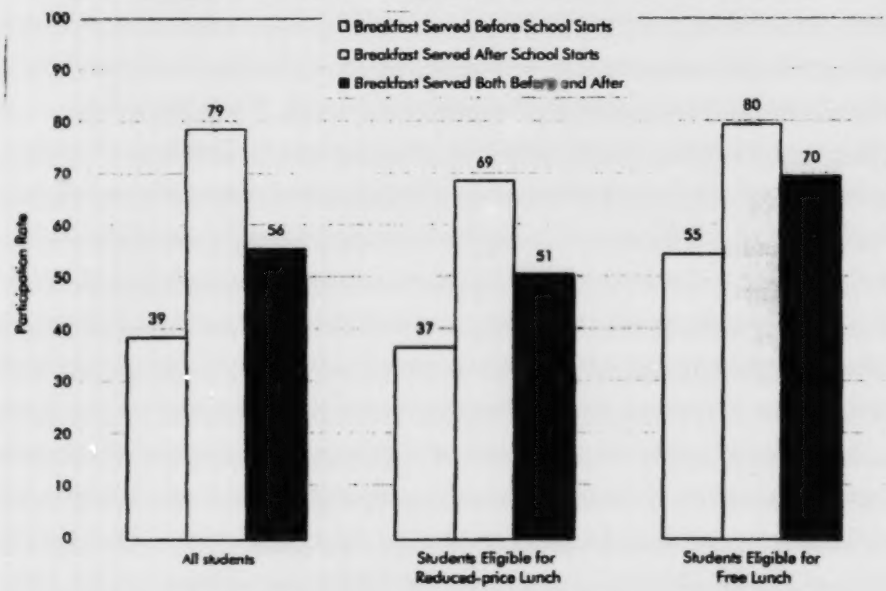
Figure 4
Student Participation in the School Breakfast Program: 1999–01



for free or reduced-price meals (see data on the Web at: http://www.fns.usda.gov/cnd/Breakfast).

Breakfast participation rates were compared for schools that served breakfast before school started, schools that served breakfast after school started, and schools that served both before school started and after the start of the school day. Among all students, participation rates were highest at schools that served breakfast after school started. As shown in Figure 5, nearly 80% of all students at schools where breakfast was served after school started participated in the program, compared to about 40% of the students at schools where breakfast was served before school started. The results were statistically significant and were similar for students eligible for free and reduced-price meals as well.

Figure 5
School Breakfast Participation, by When Breakfast was Served: 2000–01



Participation rates in the School Breakfast Program varied from school to school. Even schools in the same district, or schools with similar student populations, varied in the percentage of students participating in the program. According to principals, teachers and food service staff, there were numerous factors that influenced the breakfast participation rates at schools.

One factor mentioned during interviews was the simple

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competition for students' attention and time. Several respondents interviewed mentioned that at schools where breakfast was served before school students had a variety of options and breakfast wasn't always a top priority. For example, at some schools students could play outside on the playground before school started. At one of the schools, interviewees reported that students had the opportunity to take part in open reading time in the library before school started. And at a number of schools students were allowed to go to their classrooms early with their friends if they were not eating breakfast. Any of these activities could easily serve as a distraction from eating breakfast and, consequently, could negatively affect participation rates at schools.

Late bus arrival was another possible explanation cited during interviews and on surveys as negatively affecting student participation. According to interviews with teachers, if students arrived late for school they would not likely eat breakfast. Even at schools where students were excused if they were tardy due to breakfast, teachers argued that students would choose not to eat rather than be late for class. Results from the mail surveys indicated that 28% of respondents reported bus schedules were still a barrier to the program. Overall, this barrier was mentioned more than any other barrier, and the percentage of respondents who saw this as a barrier was 8% higher this year than the previous year (20% of respondents).

The majority of interview respondents overestimated participation rates at their school. In some cases they estimated the rate at nearly twice as high as the numbers that were reported to the state last year. During interviews several respondents mentioned that in their school teachers and/or principals did not observe breakfast firsthand. This was often because teachers needed to be in their classrooms to supervise students who arrived early, and principals attended to other business first thing in the morning. In these scenarios, interviewees' estimations of participation rates were not based on actual counts of students eating breakfast, so the numbers could very well have been overestimated. Also, teachers may "count" the number of students who participate at some time or another, which is greater than the number who participate on a given day.

It is also possible that many of the respondents were referring to participation in the breakfast program for the current academic year (2001–02) rather than the previous year. Participation rates increased at many schools between 2000 and 2001. Schools were categorized by their rates of student participation in the breakfast program for the 2000–01 school year. Estimating rates for one year as opposed to another could help to explain the discrepancy. This misperception could have also been an important factor influencing the promotion of the breakfast program, which will be discussed later in this section.

However, another possibility as to why school personnel thought the student participation rates at their schools were different than they actually were could have been due to schools inaccurately reporting the number of students eating breakfast or their student enrollment to the state. There was not one standard method of reporting breakfast participation at all schools: some schools tallied student counts by hand, while others scanned student identification cards. It is also important to recognize that although food service personnel served the

breakfast, they were not always the ones reporting the participation numbers to the state. For example, it was not uncommon for a school to have an office staff person responsible for reporting breakfast participation numbers even if s/he was not directly involved with the program at any other level. Any of these circumstances could have contributed to an inaccurate count or overestimation of student participation.

Another possible cause for the discrepancy could be the enrollment data for schools whose participation rates were calculated. If a school was classified as a Provision 2 or Provision 3 school, their enrollment figures were estimated using base year data that was then used for the *following three to four years.* Since breakfast participation rates were calculated using enrollment data that likely changed from year to year, this could have skewed the participation results for years when the enrollment data was merely estimated rather than derived from an actual calculation.

For the most part, when asked how participation rates could be increased, respondents did not seem particularly knowledgeable or concerned with participation rates at their school. As previously stated, this may have been because they believed that overall participation rates were already high. If respondents were under the impression that two-thirds or more of their students were eating breakfast, it is not likely they would be concerned with promoting the program and increasing participation rates. Overall, the majority of respondents seemed satisfied with participation rates at their school.

Another influential factor in recording the participation rates could be the way in which the program is promoted to parents and students. Principals, teachers and food service staff were asked what they did to promote the breakfast program at their school. The most common response from principals and teachers was that they wrote a weekly school or class newsletter to promote the program to parents and students. Most principals said that their school or district sent out a flyer at the beginning of the year to inform parents and encourage them to have their children eat breakfast at school. Another school reported that the superintendent of the district visited each school and served students breakfast in the classroom to promote the program. One district went so far as to promote the program on a local radio broadcast.

The most common method of informing parents was a school newsletter. More than half of respondents said their school promoted the breakfast program by sending the breakfast menu home to parents with the lunch menu. Teachers discussed the program with parents at parent/teacher conferences and open houses in hopes of increasing participation. District publications, flyers and articles in local newspapers were also mentioned as ways in which the program was promoted to parents. Some materials sent home were designed to promote the program to students directly, rather than parents. These included flyers and newsletters. The program was also promoted to students through school and classroom contests and PA announcements.

For the most part, school food service personnel did not personally promote the program. However, one food service staff member reported coordinating an "Early Bird Contest." Students arriving for breakfast before a certain time

were entered into a drawing for prizes. She thought that the students liked the idea, and it helped get kids into the cafeteria for breakfast.

Teachers tried to emphasize the fact that the breakfast program was available to *all* students and *free of charge* in promoting the program to parents and the community. There was also discussion at parent/teacher conferences about the availability of the program. Some teachers stated that they even made calls home to certain parents if they believed their child should be participating in the program, but s/he wasn't. A few teachers also mentioned how they tied school breakfast to their nutritional lessons in hopes of informing students about the benefits of eating a good breakfast and, in turn, encouraging them to participate.

During the in-school interviews respondents were asked about participation rates for specific student populations. According to school personnel, older students—usually 6th grade or older—were less likely to participate in the breakfast program than were students in grades K–5. Where students had to wake up early for a long commute to school or where parents had a long commute to work, students were perceived as more likely to participate. Parents in these "commuter communities" commented to teachers that they appreciated the breakfast program because it was one less thing they had to worry about in the morning. "Many students aren't ready to eat breakfast at 6 o'clock in the morning," one teacher commented. "Having the choice to wait until arriving at school to eat breakfast is a wonderful opportunity for these students and their parents."

An increase in program familiarity among parents and students is likely to perpetuate the steady climb in breakfast program participation rates across the state. Overall, while national studies show participation rates increasing by 4–5% across the country, the increases in Minnesota were three to four times higher (see the information at: http://www.fns.usda.gov/cnd/Breakfast).

ACHIEVEMENT

Whether the School Breakfast Program affects student achievement is a question often posed by educators and policymakers. In this study, student achievement was measured by 3rd and 5th grade test scores on the *Minnesota Comprehensive Assessment* in reading, mathematics, and writing (5th grade only). This is the 2nd year of the report; therefore, the differences between the 1998–99 school year (baseline) and the 2000–01 school year were the focus of analysis.

In addition to the *Fastbreak* and *Control* schools discussed in previous chapters, a third group, *No Breakfast*, was added to the analysis in this section. The *No Breakfast* group consists of 40 schools that do not serve breakfast at all. Schools in the *No Breakfast* group were not included in earlier chapters (Administration, Participation, etc.) because those chapters addressed issues relating only to schools with breakfast programs. However, it is useful to include these schools when analyzing student achievement.

The descriptive data in the tables in this chapter represent raw means and percentages, which have not been adjusted to reflect differences between *No Breakfast, Fastbreak,* and *Control* schools in student demographics (e.g., the percentage of low-income students). However, in running statistical significance tests, the analyses did control for differences in the percentages of students with limited English proficiency (LEP), students in special education, students eligible for free or reduced-price lunch, and students having "new to district" status. In other words, while the descriptive data shown in the tables is unadjusted, the statistical significance tests referred to in the text did take into account differences in the student composition of the various schools (see Appendix B).

Third Grade Achievement

Tables 2 and 3 (p. 38) show 3rd grade achievement in mathematics and reading. Overall, students at *No Breakfast* schools had the highest average scores. *No Breakfast* schools also had the highest percentage of students testing at or above Level II and at or above Level III in both mathematics and reading across all three years. It is important to remember the demographic makeup of student populations at most of these schools: they tend to have a much lower percentage of students eligible for free/reduced-price lunch *and* a lower percentage of students with limited English proficiency (See Appendix A).

In 3rd grade achievement, *Fastbreak* schools showed the greatest gain in average mathematics scores between the 1998–99 school year and the 2000–01 school year (see Table 2, p. 38). The average score in mathematics was 1419 for *Fastbreak* schools, only one point below the 1420 standard for Adequate Yearly Progress[1] and 43 points higher than the average in 1998–99. These schools also had the greatest percentage gain in students scoring at or above Level II in mathematics over the same three-year period. However, these 3rd grade

[1] In an attempt to comply with federal Title I regulations, state achievement expectations were established for schools. Four categories of school achievement were defined for 3rd grade reading and mathematics, and for 5th grade reading, mathematics and writing. The "Meeting Expectations" category, (at or above 1420) was set for a school's average score.

Table 2
3rd Grade Math Achievement

	Overall	Fastbreak	Control	No Breakfast
Average Score: 2000-01	1463	1419	1481	1507
Gain from 1998-99 to 2000-01	43	43	39	41
Average Score: 1998-99	1420	1376	1442	1466
% at or above Level II: 2000-01	87%	82%	90%	92%
Gain % at or above Level II: from 1998-99 to 2000-01**	4	6	3	3
% at or above Level II: 1998-99	83%	76%	87%	89%
% at or above Level III: 2000-01	47%	39%	50%	55%
Gain % at or above Level III: from 1998-99 to 2000-01	12	10	11	13
% at or above Level III: 1998-99	35%	29%	39%	42%

** Significant differences exist between Fastbreak, Control, and No Breakfast schools (p ≤ .05). Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students. More detail on the significance tests can be found in Appendix B.

Table 3
3rd Grade Reading Achievement

	Overall	Fastbreak	Control	No Breakfast
Average Score: 2000-01	1453	1408	1473	1497
Gain from 1998-99 to 2000-01**	62	57	67	59
Average Score: 1998-99	1391	1351	1406	1438
% at or above Level II: 2000-01	79%	71%	83%	86%
Gain % at or above Level II: from 1998-99 to 2000-01 **	6	7	7	4
% at or above Level II: 1998-99	73%	64%	76%	82%
% at or above Level III: 2000-01	42%	34%	46%	51%
Gain % at or above Level III: from 1998-99 to 2000-01**	9	7	11	10
% at or above Level III: 1998-99	33%	27%	35%	41%

** Significant differences exist between Fastbreak, Control, and No Breakfast schools (p ≤ .05). Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students. More detail on the significance tests can be found in Appendix B.

mathematics achievement differences were not statistically significant (Table 2).

In 3rd grade reading, *Fastbreak* schools improved average scores by 57 points, but were still below the 1420 threshold with an average score of 1408. Although 3rd grade reading scores continued to improve, there were no statistically significant differences in average achievement scores in reading for any of the three groups analyzed. However, there were statistically significant differences in the gain percentage of students at or above Level II and at or above Level III

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in 3rd grade reading. The gain was significantly less at *No Breakfast* schools for students at or above Level II, and significantly higher at *Control* schools for students at or above Level III (Table 3, p. 38).

Fifth Grade Achievement

Tables 4, 5 and 6 (p. 40) show 5th grade achievement in mathematics, reading, and writing. Results for 5th grade achievement are similar to those at the 3rd grade level: students at *No Breakfast* schools had the highest average scores as well as the greatest percentage of students testing at or above Level II and at or above Level III in mathematics, reading, and writing across different years.

Fastbreak schools reported the greatest gain in 5th grade mathematics scores from 1998–99 to 2000–01. Average scores increased by 79 points, but still fell short of the 1420 score required to meet Adequate Yearly Progress goals. As shown in Table 4, *Fastbreak* schools also had the greatest percentage gain in students scoring at or above Level II in mathematics. This difference was statistically significant.

Although average reading scores continued to increase for the second consecutive year, there were no statistically significant differences in average 5th grade reading gains between *Fastbreak*, *Control* and *No Breakfast* schools. However, as shown in Table 5, *Fastbreak* schools showed the greatest percentage gain in students scoring at or above Level II between the two school years and these results were statistically significant. It is also worth noting that *Fastbreak* schools increased

Table 4
5th Grade Math Achievement

	Overall	Fastbreak	Control	No Breakfast
Average Score: 2000-01	1454	1410	1465	1497
Gain from 1998-99 to 2000-01	74	79	68	71
Average Score: 1998-99	1380	1331	1397	1426
% at or above Level II: 2000-01	84%	78%	87%	90%
Gain % at or above Level II: from 1998-99 to 2000-01**	9	13	7	7
% at or above Level II: 1998-99	75%	65%	80%	83%
% at or above Level III: 2000-01	43%	34%	45%	51%
Gain % at or above Level III: from 1998-99 to 2000-01	13	11	13	15
% at or above Level III: 1998-99	30%	23%	32%	36%

** Significant differences exist between Fastbreak, Control, and No Breakfast schools ($p \leq .05$). Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students. More detail on the significance tests can be found in Appendix B.

Table 5
5th Grade Reading Achievement

	Overall	Fastbreak	Control	No Breakfast
Average Score: 2000-01	1501	1447	1521	1550
Gain from 1998-99 to 2000-01	89	86	88	92
Average Score: 1998-99	1412	1361	1433	1458
% at or above Level II: 2000-01	84%	77%	88%	91%
Gain % at or above Level II: from 1998-99 to 2000-01**	8	11	8	8
% at or above Level II: 1998-99	76%	66%	80%	83%
% at or above Level III: 2000-01	54%	44%	58%	64%
Gain % at or above Level III: from 1998-99 to 2000-01	17	15	17	20
% at or above Level III: 1998-99	37%	29%	41%	44%

** Significant differences exist between Fastbreak, Control, and No Breakfast schools ($p \leq .05$). Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students. More detail on the significance tests can be found in Appendix B.

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Table 6
5th Grade Writing Achievement

	Overall	Fastbreak	Control	No Breakfast
Average Score: 2000-01	1482	1450	1487	1528
Gain from 1998-99 to 2000-01**	47	59	37	45
Average Score: 1998-99	1435	1390	1450	1483
% at or above Level II: 2000-01	95%	93%	95%	97%
Gain % at or above Level II: from 1998-99 to 2000-01**	3	4	2	2
% at or above Level II: 1998-99	92%	89%	93%	95%
% at or above Level III: 2000-01	48%	43%	49%	56%
Gain % at or above Level III: from 1998-99 to 2000-01	9	11	8	11
% at or above Level III: 1998-99	39%	32%	41%	45%

** Significant differences exist between Fastbreak, Control, and No Breakfast schools ($p \leq .05$). Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students. More detail on the significance tests can be found in Appendix B.

is also worth noting that *Fastbreak* schools increased average reading scores from 1361 to 1447, exceeding the standard for achievement (1420).

In 5th grade writing, there was a statistically significant difference between the gain of average scores for students at *Fastbreak* schools compared to *Control* and *No Breakfast* schools. *Fastbreak* schools gained 59 points, compared to 37 points for *Control* schools and 45 for *No Breakfast* schools. Students at *Fastbreak* schools showed significantly higher gains in the percentage of students at or above Level II (Table 6).

Overall, achievement continued to improve in 3rd and 5th grade. Statistically significant differences were found in the average gains for *Fastbreak* schools in 5th grade writing, over *Control* and *No Breakfast* schools. Regarding the gain in the percentage of students at or above Level II, *Fastbreak* schools had statistically significant higher gains in all areas in both 3rd and 5th grades.

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ATTENDANCE

Research has shown that attendance is one of the factors that most influences a student's academic success. Overall, attendance rates in Minnesota elementary schools are high and there is little room for substantial increases in most schools. Tables 7 and 8 (p. 42) show attendance rates for grades 1–3 and 4–6 from 1999–01.

As shown in Table 7, the overall average attendance rate for grades 1–3 was 96% in 2000 –01 for all three groups. This is a 1% increase for *Fastbreak* schools and a 2% increase for *Control* schools since 1998–99. The average attendance rate for students eligible for reduced-price lunch was also 96%, and for students eligible for free lunch this percentage was 95%—up one percent from the previous year.

Table 7
Average Attendance Rates: Grades 1–3

	Total	Fastbreak	Control	No Breakfast
Total attendance rate: 2000-01	.96	.96	.96	.96
Total attendance rate: 1999-00	.96	.95	.96	.96
Total attendance rate: 1998-99	.95	.95	.94	.96
Gain in attendance rate: 1999-01	.01	.01	.02	.00
Reduced attendance rate: 2000-01	.96	.96	.96	.97
Reduced attendance rate: 1999-00	.96	.96	.96	.96
Reduced attendance rate: 1998-99	.95	.96	.95	.96
Gain in reduced attendance rate: 1999-01	.01	.00	.01	.01
Free attendance rate: 2000-01	.95	.95	.95	.95
Free attendance rate: 1999-00	.94	.94	.95	.95
Free attendance rate: 1998-99	.94	.94	.93	.95
Gain in free attendance rate: 1999-01	.01	.01	.02	.00

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Table 8
Average Attendance Rates: Grades 4–6

	Total	Fastbreak	Control	No Breakfast
Total attendance rate: 2000-01	.96	.96	.96	.96
Total attendance rate: 1999-00	.96	.95	.96	.96
Total attendance rate: 1998-99	.95	.95	.94	.96
Gain in total attendance rate: 1999-01	.01	.01	.02	.00
Reduced attendance rate: 2000-01	.96	.96	.96	.96
Reduced attendance rate: 1999-00	.96	.96	.96	.96
Reduced attendance rate: 1998-99	.95	.96	.95	.96
Gain in reduced attendance rate: 1999-01	.01	.00	.01	.00
Free attendance rate: 2000-01	.95	.95	.95	.92
Free attendance rate: 1999-00	.95	.94	.95	.95
Free attendance rate: 1998-99	.94	.94	.93	.95
Gain in free attendance rate: 1999-01	.01	.01	.02	-.03

Table 8 shows the attendance rates for grades 4–6. The rates are very similar to the 1st through 3rd grade results. Overall, the average attendance rate was 96% for all three groups. The most notable difference in attendance rates in grades 4–6 appeared among students eligible for free lunch who attended *No Breakfast* schools. This group's attendance rate dropped 3%, from 95% in 1998–99 to 92% in 2000–01. Attendance rates for these students increased by 2% in *Control* schools, and 1% in *Fastbreak* schools during this same time period. However, none of the differences in attendance rates were statistically significant.

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HEALTH AND DISCIPLINE

The Fast Break to Learning School Breakfast Program, a universally free program, was implemented in Minnesota in 1999. Minnesota is one of only a few states that have experimented with universally free school breakfast. From 1994–97, the Center for Applied Research and Educational Improvement (CAREI) at the University of Minnesota conducted a pilot study to measure the effects of a free breakfast program (the federal Universal Free Breakfast Program) on six selected school sites in Minnesota. In order to expand on CAREI's research and to add an additional facet to the analysis of the Fast Break to Learning School Breakfast Program, this report incorporates data on health and discipline issues. This examination of the effects the Fast Break to Learning Breakfast Program has had on student behavior uses data from health and discipline surveys that were completed at numerous school sites statewide. To facilitate understanding of this analysis of behavior issues, a short description of CAREI's pilot study follows.

Each year the pilot was in effect, researchers at CAREI reported on various measures of school outcomes in hopes of finding a relationship between the breakfasts being served in schools and student outcomes. In addition to looking at the connection to academic performance (measured with standardized tests at the 3rd and 5th grade levels), they examined social and behavioral patterns in students that might be linked to school breakfast.

Through numerous informal interactions with students, school nurses, and administrators, researchers identified several non-academic aspects of the learning environment that might be affected by the School Breakfast Program. These included: (1) number of disciplinary problems, (2) type of disciplinary problems, (3) frequency of visits to the school nurse, and (4) teachers' perspectives on student alertness in the classroom.

In an attempt to quantify these results, CAREI researchers interviewed teachers, students, food service personnel, administrators, and parents. In addition to the interviews, a mail survey was sent out to these respondents. Both the mail survey and the personal interview questions elicited opinions and perceptions about the breakfast program in general.

In the CAREI study, members of each group were also asked to discuss the ways in which the breakfast program affected their own work with students. For instance, teachers were asked to comment on the alertness and attentiveness of students in their classrooms during the morning (linking specific observable behavior to breakfast). Responses were overwhelmingly positive. Of the 54 teachers who responded to the surveys, 22% specifically remarked that as a consequence of the breakfast program, students came to class prepared for the day and ready to learn. Particular observations from these respondents included statements such as: "children are focused right away," "concentrate better,' and "work better." Seven of the respondents observed an increased level of alert-

ness in students. One teacher observed, "Students are energetic, bright, and alert at 10 o'clock in the morning. They do not get the '10 o'clock droopies'."[2] Based upon this qualitative data, researchers at CAREI concluded that serving breakfast under the Universal Free Breakfast Program had positive effects on student behavior and school climate.

Given the positive nature of the responses to CAREI's questions about the pilot breakfast program, this report addresses health and discipline issues within a wider sample of schools offering universal free breakfast programs.

Methodology

Based on two nested criteria, 515 schools were invited to participate in the health and discipline aspect of the research. First, the school had to be *eligible to participate* in the Fast Break to Learning Breakfast Program in the 2000–01 school year. Second, of the schools eligible in 2000–01, only those that chose *not* to participate during the 2000–01 school year, but that did participate in 2001–02 were invited to complete the health and discipline portion of the study. Schools meeting both criteria then indicated (on a form) whether they wished to complete the survey. As an incentive, a $100 stipend was issued to participating schools after the completed forms were received by the Department of Children, Families & Learning (CFL).

Selection of schools using the above-mentioned criteria facilitated measurement of the effect of school breakfast on student health and discipline. Since the initial data collection was designed to serve as a baseline against which future survey results could be directly compared, it was important to have a year's worth of data on health and discipline in the school *before* the universal breakfast program was implemented (hence the need to include only schools that had been eligible for two years, but had actually participated only in the second year).

Surveys were mailed to principals of participating schools two weeks prior to the scheduled start of reporting. The survey was comprised of a health section and a discipline section. The responsibility for gathering the necessary information fell to different school personnel, depending on the school. In most instances, the school nurse recorded tallies on the health survey, while the assistant principal or administrative assistant recorded the student disciplinary information. The summary data requested on these two forms were reported on two dates each week, from April 25 through June 6 or the last day of school (whichever was earlier). Depending on vacation dates and end-of-year dates, schools gathered data within a period of time ranging from 10 to 14 weeks, for a total of 20 to 28 school days. Additional data, to permit direct comparison between the school years, were gathered by means of a second, identical survey that was sent out in fall 2001 to the same schools that participated in the first survey. From October through December, participating schools again gathered data on student health and discipline issues.

The format of the health survey was a 4 x 2 (illness by time of day) contingency table layout. The recorder would mark the appropriate category based upon the reason for a student's visit to the nurse's office. Reasons for visiting the nurse were lumped into four categories: (1) *contagious illness* (chicken pox,

[2] Center for Applied Research and Educational Improvement, University of Minnesota. (1997) *Minnesota Universal Breakfast Pilot Study: Year Three Report.* Minneapolis, MN: Author.

head lice, pink eye, etc.); (2) *injuries* (abrasions, cuts, bloody noses, etc.); (3) *minor illnesses* (stomach aches, headaches, etc.); and (4) *acute illness* (asthma attacks, vomiting, cough and sore throat, etc.).

As the type of illness was identified by the recorder, the general time of day (morning or afternoon) when the visit occurred was also noted. This made it possible to determine how many of each illness type (1, 2, 3, or 4) were recorded, and whether they happened in the morning or the afternoon on any given day. Data were compiled and collated for the prescribed number of days for each participating school. The nature of the data allowed researchers to analyze whether reasons for visiting the nurse were independent of the time when the visit took place. They also permitted one-way comparisons between reasons and time of day, using an analysis of variance procedure.

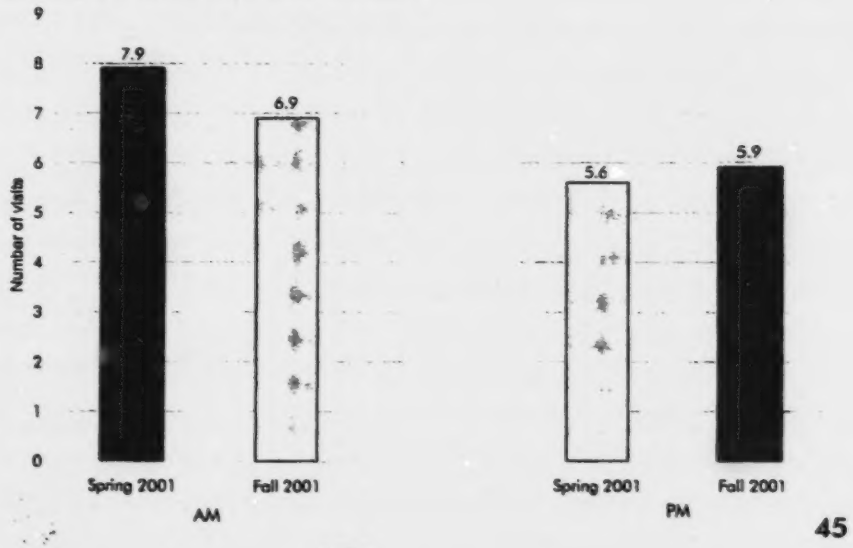
The format for the discipline survey closely paralleled that of the health survey. A 5 x 2 contingency table was established where the rows represented the location at which discipline problems occurred, while columns represented the general time of day (morning or afternoon) when each disciplinary intervention happened. A tally marked the locations where student infractions occurred, and whether they occurred in the morning or the afternoon.

The study identified the following five locations for potential discipline problems relevant to the breakfast program: classroom; playground; hallway/ cafeteria; school bus; and "other locale." Types of behavior that might require disciplinary action included, but were not limited to, inattention, causing harm to self, disrespect, defiance, excessive silliness, causing harm to another student, inappropriate language, striking a teacher, throwing objects, running in hallways, not listening when called, and disobeying known bus rules. Data were collected over the prescribed number of days and collated for analysis. Once again, because of the nature of the data (frequencies), data analysts could determine whether the location was independent of the general time of day when disciplinary problems occurred. Furthermore, differences in frequency between time of day and location could be investigated.

Results

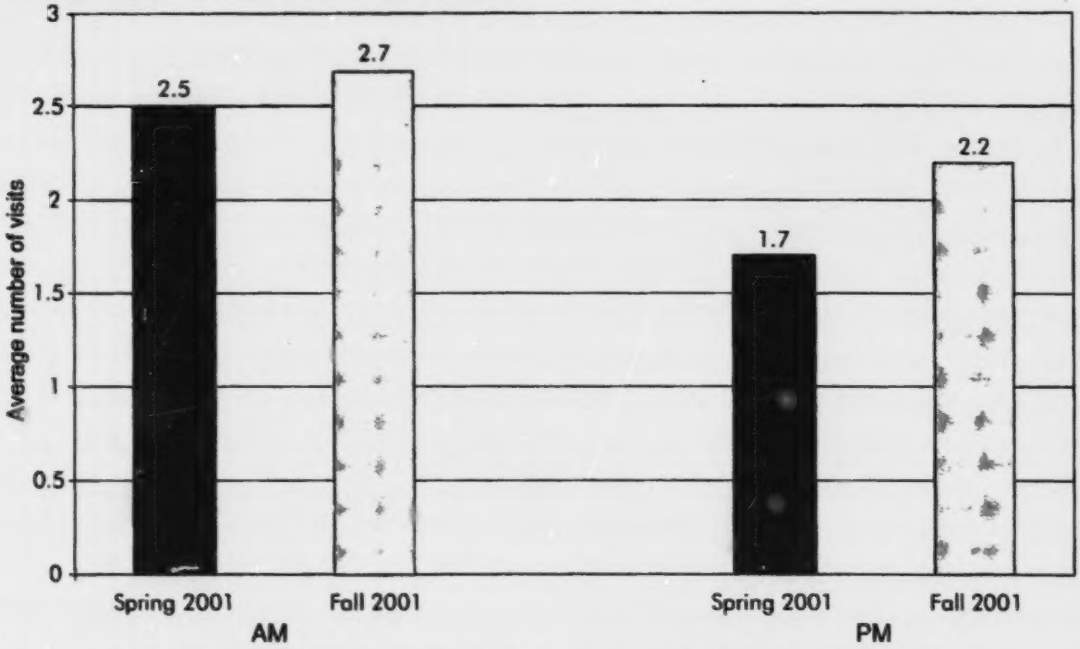
Results from the analysis are broken down into two categories: those related to health, and those related to discipline. Overall, the average number of nurse visits in the morning decreased from spring to fall, while the average number of afternoon visits increased slightly over the same period (Figure 6). Analyses on the health surveys revealed that injuries accounted for the majority of cases that school nurses saw in both reporting

Figure 6
Overall Average Number of Nurse Visits



periods. However, in the fall, the number of minor illnesses was almost as high as the number of injuries. The breakdown of the various categories between the two time periods (morning vs. afternoon) was consistent from spring to fall reporting periods (see Appendix C).

Figure 7
Average Number of Nurse Visits for Minor Illness



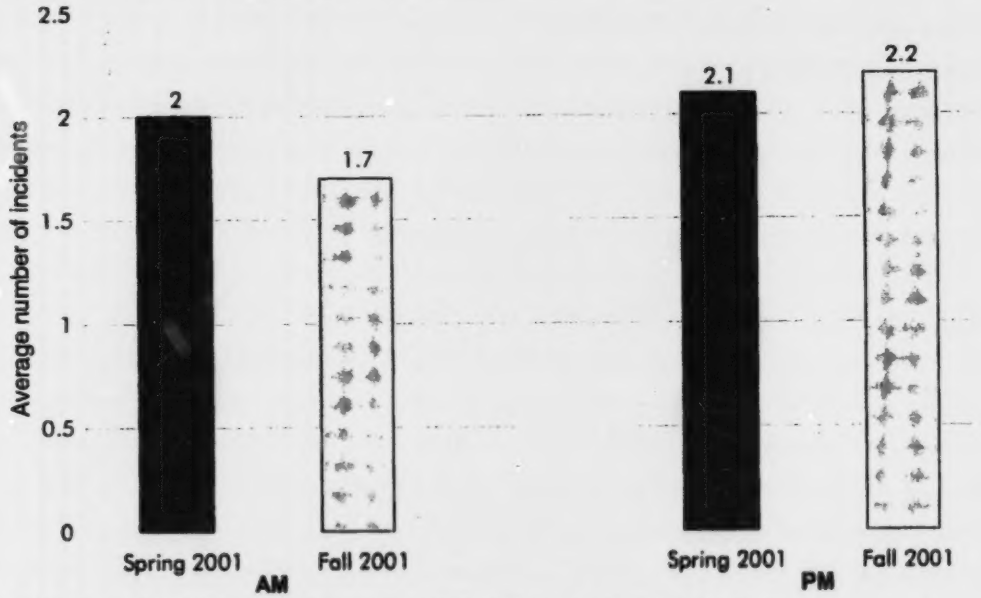
On average, nurses reported seeing fewer cases of all types of student ailments in the afternoon than they saw in the morning. For instance, in the spring of 2001, nurses reported that they saw an average of 2.5 students who were diagnosed with a minor illness in the morning, while they reported only seeing an average of 1.7 students for the same reasons in the afternoon. This occurred during both spring and fall reporting periods (Figure 7).

Disciplinary incidents decreased overall from spring 2001 to fall 2001. An average of two disciplinary incidents were reported in the morning in the spring of 2001, while the average number of infractions reported in the morning in the fall of 2001 was only 1.7. However, afternoon disciplinary incidents remained virtually the same in spring and fall (Figure 8, p. 47).

The greatest percentage of disciplinary incidents occurring in both morning and afternoon were classroom infractions (47%) followed by incidents that happened on the playground (20%), and then hallway infractions (15%). This hierarchy of disciplinary incidents was identical for both time periods. For a complete breakdown of percentages of nurse visits and disciplinary incidents, see Appendix C.

The results from the health and discipline surveys provide supplementary information on the possible effects of serving universal free breakfast to

Figure 8
Overall Average Number of Disciplinary Incidents



students at school. The overall averages of disciplinary incidents and injuries decreased from the spring reporting period to the fall: an interesting fact, since schools were not participating in the Fast Break to Learning Breakfast Program in the spring, but were participating in the fall. However, several reasons for nurse visits increased slightly from spring to fall. On the surface, these results are encouraging regarding some behavior concerns. However, a direct correlation cannot be assumed. For example, the number of incidents reported could have decreased simply because schools were doing more consistent and accurate reporting once they began serving breakfast under the Fast Break to Learning Program. Different data recorders could also account for the differences in numbers reported. The differences in student behavior that may result from seasonal changes is also worth noting—students might be more likely to act out in the spring than in the fall.

With the ability to track individual students and gather information at the student level, it will be possible in subsequent studies to determine whether trends in health and discipline incidents in schools are related to tracking of the same cohorts, which have identifiable group behavioral characteristics. It will also assist in determining whether or not these characteristics are related to the implementation of the Fast Break to Learning School Breakfast Program. Previous research in the area of nutrition and student behavior is overwhelmingly positive about the benefits that food, particularly breakfast, has on students' cognitive growth and behavior. These survey results add some weight to the theory that when students are well-nourished they flourish in school settings, as there was a decrease in the number of disciplinary issues reported once the Fast Break to Learning Breakfast Program was in place. However, whether or not the program affects students' health-related problems is still in need of further investigation.

Conclusions and Recommendations

Since 1999, Minnesota schools have had an opportunity to participate in the Fast Break to Learning Breakfast Program. This year's report analyzed the results from the first two years of the program. Three groups were included in the research: schools that participated in the Fast Break Program, offering breakfast to all students free of charge (*Fastbreak* schools); schools that served breakfast to students on a sliding fee scale (*Control* schools); and a small group of schools that did not serve breakfast at all (*No Breakfast* schools). Through mail surveys, in-person interviews, and large scale data files, data were collected on the administration of the breakfast program in schools, student participation in the program, the impact of the program on student achievement and attendance, and health and discipline data before and after the program was implemented in schools.

Conclusions

Program Administration

- The majority (over 90%) of mail survey respondents agreed that there were benefits to having the School Breakfast Program.
- In general, teachers were extremely supportive of the program and saw it as a great benefit for students *and* parents.
- Virtually all *Control* schools (99%), and 95% of *Fastbreak* schools reported they served breakfast before school started. In addition, one-third of *Fastbreak* schools also served breakfast after the start of the school day, compared to only 6% of *Control* schools (some of these schools served breakfast both before school started and after the start of the school day).
- The most common student activity taking place during breakfast was socializing. Whether breakfast was served before school or after the start of the school day did not change this result. It also did not matter if students ate on their own or with their class— socializing was still the most common activity reported across all categories.
- Some teachers expressed concern about the nutritional value of the food served. Several argued the sugar and fat content was too high and that schools/districts should focus on serving more healthy foods.
- Culturally sensitive menu planning was mentioned as an issue at schools with large Hmong and/or Hispanic student populations. Teachers argued that students who were in need of the program did not participate because the menu was not culturally sensitive.
- The most frequently cited barrier to implementing the program was bus schedules. According to teachers, if buses could get students to school earlier they would be more likely (or able) to eat breakfast at

school. Although bussing schedules continue to be perceived as a significant barrier to the success of the breakfast program, it is also one of the most difficult for schools and districts to resolve because of the complexity involved in scheduling.

Participation

- Participation rates continued to increase for all groups in *Fastbreak* schools, but not in *Control* schools, where rates leveled off between 1999 and 2001.
- In both *Fastbreak* and *Control* schools, participation rates were highest among students eligible for free lunch.
- Participation rates were higher in *Fastbreak* schools than in *Control* schools.
- Participation rates were higher in schools where breakfast was served after the start of the school day compared to schools where breakfast was served before school.

Achievement

- Overall, students in *No Breakfast* schools had the highest average scores, as well as the largest percentage of students testing at or above Level II and at or above Level III in mathematics, reading, and writing.
- For 3rd grade mathematics achievement, *Fastbreak* schools showed a greater gain in the percentage of students at or above Level II between the 1998–99 school year and the 2000–01 school year than did students in *Control* or *No Breakfast* schools.
- For 3rd grade reading, *Fastbreak* schools have improved average scores by 57 points, but were still below the 1420 threshold with an average score of 1408. Students in *Control* schools showed significantly higher gains than students in *Fastbreak* or *No Breakfast* schools.
- *Fastbreak* schools reported the greatest gain in the percentage of students scoring at or above Level II in 5th grade mathematics and reading from 1998–99 to 2000–01.
- In 5th grade writing, there was a statistically significant difference between the average score gain for students in *Fastbreak* schools, compared to *Control* and *No Breakfast* schools. *Fastbreak* schools gained 59 points, compared to 37 points for *Control* schools and 45 for *No Breakfast* schools.

Attendance

- The average attendance rate for students in elementary school was 96% in 2000–01.
- There was a slight increase in overall attendance rates in *Fastbreak* schools between 1999–01, particularly for students eligible for free lunch. Attendance rates dropped by 3% for students eligible for free lunch who attended *No Breakfast* schools. These differences were not statistically significant.

Health and Discipline

- Overall, the average number of morning nurse visits decreased from spring 2001 (before the breakfast program was implemented) to fall 2001 (after the breakfast program was implemented). However, the average number of afternoon nurse visits increased slightly from spring to fall.
- Overall, disciplinary incidents decreased from spring 2001 (before the breakfast program was implemented) to fall 2001 (after the breakfast program was implemented).

Recommendations

Improving Participation Rates in the Fast Break to Learning Breakfast Program

The vast majority of schools served breakfast before school started. However, based on our findings, schools that served breakfast after the start of the school day had significantly higher participation rates than schools that served before school (79% compared to 39%). It is difficult, however, to determine whether the participation rates were higher at these schools due to the timing of breakfast or to the nature of their breakfast program implementation.

Schools that served breakfast after school started were more likely to participate in breakfast as a class. Teachers were generally more involved in the program and accompanied students to breakfast, and some even ate with their students. One school implemented this model of participating as a class *before* school and still experienced very high participation rates. Since most schools continue to choose to serve breakfast before school starts, it would be beneficial to find the most effective model for this time period. Schools with a concern about cutting into instructional time if they served breakfast after the start of the school day should consider the alternative of continuing to serve breakfast before school starts, but switching to a class participation model rather than an individual student model.

Providing Schools with Blue Print/Best Practices

Consistency in implementation and reporting of the Fast Break to Learning Breakfast Program would make analyzing the program's success much easier. However, since it is not realistic to assume that all schools would implement the program in the same manner, the alternative is to provide schools with some Best Practice examples. The schools that have the greatest number of students in need of the breakfast program are generally schools with a number of other pre-existing student challenges. Instead of asking these schools to spend time and resources trying to figure out how to implement the breakfast program on their own, it makes sense to provide them with a couple of implementation models from which they might choose. We recommend a before school model and an after school model, with a detailed plan for implementing, promoting and administering the program in their school. Insight from staff at schools that have experienced a successful implementation should be included in the presentations.

More Nutritious and Culturally Sensitive Breakfast Menus

One of the few concerns voiced by teachers about the *Fast Break to* Learning Breakfast Program was the nutritional value of the food served. Several mentioned that they thought the fat and sugar content was too high. If the purpose of the program is to provide students with the nutrients they need to perform well in school, it logically follows that the food served should be of the utmost nutritional value. Some teachers argued that this was often not the case. According to staff, caramel rolls, sugared cereal, chocolate milk, French toast sticks, donuts, and muffins were commonly served for breakfast. Although these foods could be served on occasion, we recommend that healthier selections make up the majority of the meals. While the argument has been made that these foods are all students will eat, it is worth noting that participation rates were not lower at schools where breakfast consisted of a healthy, balanced meal. Based on in-school interviews and site visits, it appeared that offering food that was prepared on site and/or was "home cooked" had a greater impact on whether students ate breakfast than whether it was loaded with sugar and fat.

In addition to improving the nutritional value of the breakfast meals served in schools, we recommend that more consideration be given to the diverse makeup of the student population. In several schools, the primary population participating in the School Breakfast Program was a minority group. The ethnic background of students should be considered in planning menus if the purpose of the program is to provide for these populations in need. Not only are students used to different foods than those served; often, they have sensitivities or allergies to "common" breakfast foods, such as dairy products.

As the student population in Minnesota becomes more diverse, breakfast menus should also diversify. This diversification in food offerings might be perceived as rather risky for the schools, given the potential high cost of serving items that students disliked. In addition, food service personnel might feel uncomfortable with the idea of trying completely new food preparation techniques, without recipes or training in the new cuisine. These risks could be addressed in a variety of ways.

Tapping minority parental resources could give schools valuable information about possible additions to the regular "American" breakfast offerings. Such parental assistance might also include help with training in preparation techniques. (Non-minority parents might also have ideas about items that they would like to see added to or removed from the current breakfast menus.)

Liaisons from a minority agency or association also might provide names and contact information for individuals who would be willing to collaborate with schools on the development of culturally sensitive menu offerings, and might be able to provide interpretation assistance if necessary.

Possible ways of addressing the issue of how to find culturally sensitive menu items that students would like might include "test-marketing" the new menu items periodically, perhaps in the context of an "International Food Fair" or another cross-cultural school event. This would enable nutrition staff to see which items were the most popular, and could help to diminish the risk of

spending large amounts of money on food that students disliked. Such a taste-testing effort might be of interest to breakfast food manufacturers as well. In addition, it might help to strengthen the relationship between schools and the minority populations they increasingly serve.

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APPENDIX A: Demographics

Table A.1
3rd Grade Demgraphics (2000)

		No Breakfast		Fastbreak		Control	
		Percentage of Schools	Percentage of 3rd Graders	Percentage of Schools	Percentage of 3rd Graders	Percentage of Schools	Percentage of 3rd Graders
TOTAL		N = 89	N = 4,625	N = 245	N = 12,053	N = 199	N = 9,641
Strata	Mpls/St. Paul	5%	3%	52%	57%	3%	3%
	TC Suburbs	32%	49%	7%	7%	22%	26%
	Outstate >2000	20%	24%	19%	19%	29%	32%
	Outstate <2000	43%	24%	22%	17%	46%	39%
LEP	0%	62%	52%	35%	27%	43%	35%
	1-9%	23%	29%	15%	13%	37%	40%
	10-100%	15%	19%	50%	60%	20%	25%
Special Ed	0-9%	26%	32%	22%	24%	28%	29%
	10-19%	68%	67%	72%	74%	69%	70%
	20-100%	6%	2%	5%	3%	3%	1%
F/R Lunch	0-19%	16%	20%	1%	1%	1%	1%
	20-29%	32%	48%	3%	3%	15%	15%
	30-49%	28%	20%	37%	37%	64%	68%
	50-100%	23%	12%	60%	59%	19%	15%
New to District	0-9%	40%	35%	19%	17%	26%	22%
	10-19%	51%	58%	32%	34%	46%	49%
	20-100%	9%	7%	49%	49%	28%	29%

Note: LEP=Limited English Proficiency; Special Ed=Special Education; F/R Lunch=eligible for free or reduced-price lunch; New to District=Enrolled since 1/1/00.

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Table A.2
5th Grade Demgraphics (2000)

		No Breakfast		Fastbreak		Control	
		Percentage of Schools	Percentage of 5th Graders	Percentage of Schools	Percentage of 5th Graders	Percentage of Schools	Percentage of 5th Graders
TOTAL		N = 58	N = 2,970	N = 247	N = 11,400	N = 199	N = 9,749
Strata	Mpls/St.Paul	2%	0%	56%	59%	3%	3%
	TC Suburbs	25%	43%	6%	7%	22%	26%
	Outstate > 2000	16%	24%	19%	17%	28%	32%
	Outstate < 2000	56%	33%	19%	17%	47%	39%
LEP	0%	75%	67%	34%	27%	45%	36%
	1-9%	16%	20%	15%	14%	34%	36%
	10-100%	9%	14%	52%	60%	22%	28%
Special Ed	0-9%	20%	24%	20%	20%	23%	20%
	10-19%	71%	73%	74%	77%	72%	73%
	20-100%	9%	3%	7%	3%	5%	6%
F/R Lunch	0-19%	16%	25%	1%	1%	2%	1%
	20-29%	24%	34%	3%	5%	15%	13%
	30-49%	36%	28%	34%	34%	64%	70%
	50-100%	24%	13%	63%	60%	20%	15%
New to District	0-9%	49%	44%	17%	16%	26%	21%
	10-19%	42%	44%	32%	35%	46%	52%
	20-100%	9%	12%	51%	49%	28%	27%

Note: LEP=Limited English Proficiency; Special Ed=Special Education; F/R Lunch=eligible for free or reduced-price lunch; New to District=enrolled since 1/1/00.

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APPENDIX B: Achievement

The achievement data in the following five tables show the statistical significance of achievement data after controlling for demographic variables: percentages of students with limited English proficiency, students in special education, student eligibility for free or reduced-price lunch, and new students. The tables include results for adjusted effect sizes. The adjusted effect size is a variation of d equal to the difference between adjusted group means, divided by the square root of the mean square within. The adjusted means are the estimated marginal means after controlling for demographic variables. The mean square within is from the analysis in which the demographic variables were controlled for. The F-test is a comparison of differences between the three groups of schools—not just *Fastbreak* and *Control*.

Tables A.3 and A.4 contain data from 3rd grade mathematics and reading assessments. Tables A.5, A.6, and A.7 (page 62) contain data from 5th grade mathematics, reading, and writing assessments.

Table A.3
3rd Grade Mathematics

	Adjusted Means					Adjusted Effect Sizes				
	Fastbreak	Control	No Breakfast	Mean square within	Mean square between	No Breakfast-Control	No Breakfast-Fastbreak	Fastbreak-Control	F-value	Significance
Gain in Mean Score	35.84	47.35	50.18	3634.55	4577.31	.05	.24	-.19	1.26	.29
Gain in % at or above level II	3.04	4.84	6.40	73.96	206.46	.18	.39	-.21	2.79	.06
Gain in % at or above level III	9.19	11.98	12.42	138.27	258.39	.04	.28	-.24	1.87	.16

Table A.4
3rd Grade Reading

	Adjusted Means					Adjusted Effect Sizes				
	Fastbreak	Control	No Breakfast	Mean square within	Mean square between	No Breakfast-Control	No Breakfast-Fastbreak	Fastbreak-Control	F-value	Significance
Gain in Mean Score	56.33	68.45	56.36	1899.83	5445.97	-.28	0.00	-.28	2.87	.06
Gain in % at or above level II	5.05	7.82	6.62	66.34	202.95	-.15	.19	-.34	3.06	.05
Gain in % at or above level III	7.81	10.53	7.30	89.68	340.25	-.34	-.05	-.29	3.79	.02

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Table A.5
5th Grade Mathematics

	Adjusted Means					Adjusted Effect Sizes				
	Fastbreak	Control	No Breakfast	Mean square within	Mean square between	No Breakfast-Control	No Breakfast-Fastbreak	Fastbreak-Control	F-value	Significance
Gain in Mean Score	80.31	64.47	73.28	2173.51	6463.79	.19	-.15	.34	2.97	.05
Gain in % at or above level II	11.92	7.38	10.03	103.12	597.69	.26	-.19	.45	5.80	0.00
Gain in % at or above level III	11.92	7.36	10.08	102.68	605.04	.27	-.18	.42	5.89	0.00

Table A.6
5th Grade Reading

	Adjusted Means					Adjusted Effect Sizes				
	Fastbreak	Control	No Breakfast	Mean square within	Mean square between	No Breakfast-Control	No Breakfast-Fastbreak	Fastbreak-Control	F-value	Significance
Gain in Mean Score	90.63	80.64	86.68	1575.19	2549.49	.15	-.10	.25	1.62	.20
Gain in % at or above level II	10.30	6.91	10.07	79.85	370.14	.35	-.03	.38	4.64	.01
Gain in % at or above level III	16.77	15.62	17.79	87.39	78.71	.23	.11	.12	.90	.41

Table A.7
5th Grade Writing

	Adjusted Means					Adjusted Effect Sizes				
	Fastbreak	Control	No Breakfast	Mean square within	Mean square between	No Breakfast-Control	No Breakfast-Fastbreak	Fastbreak-Control	F-value	Significance
Gain in Mean Score	58.05	35.88	49.88	3,973.25	16,782.99	.22	-.13	.35	4.22	.02
Gain in % at or above level II	3.74	1.91	.84	59.93	119.57	-.14	-.37	.25	1.10	.14
Gain in % at or above level III	10.83	7.97	10.75	166.57	249.73	.22	-.01	.22	1.50	.23

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APPENDIX C: Health and Discipline Survey Results

Table A.8
Survey Results (Spring 2001): Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Average number of visits to nurse AM	78	.00	28.17	7.9010	5.93500
Average number of visits to nurse PM	78	.00	22.17	5.5555	4.92522
Average Number of visits to nurse regarding contagious illness: AM	78	.00	5.00	.5706	.96182
Average Number of visits to nurse regarding contagious illness: PM	78	.00	2.08	.1538	.31739
Average Number of visits to nurse regarding injuries: AM	78	.00	15.50	3.9359	3.18747
Average Number of visits to nurse regarding injuries: PM	78	.00	13.50	3.2514	2.99118
Average Number of visits to nurse regarding minor illness: AM	78	.00	9.75	2.4710	2.10896
Average Number of visits to nurse regarding minor illness: PM	78	.00	5.86	1.6704	1.54935
Average Number of visits to nurse regarding acute illness: AM	78	.00	7.33	.9236	1.11746
AverageNumber of visits to nurse regarding acute illness: PM	78	.00	3.33	.4799	.63763
Average number of discipline incidents AM	74	.00	13.88	2.0330	2.57715
Average number of discipline incidents PM	74	.00	19.75	2.1323	3.14998
Average Number of discipline incidents classroom: AM	74	.00	6.63	.9607	1.22251
Average Number of discipline incidents classroom: PM	74	.00	6.71	.8651	1.26085
Average Number of playground discipline incidents:AM	74	.00	4.63	.4129	.74458
Average Number of playground disciplilne incidents: PM	74	.00	4.79	.6336	.98044
Average Number of hallway and cafeteria discipline incidents: AM	74	.00	2.38	.3098	.47706
Average Number of hallway and cafeteria discipline incidents: PM	74	.00	7.79	.3879	.95536
Average Number of bus discipline incidents: AM	74	.00	1.14	.1910	.26746
Average Number of bus discipline incidents: PM	74	.00	1.33	.1184	.22791
Average Number of other discipline incidents: AM	74	.00	6.29	.1586	.74062
Average Number of other discipline incidents: PM	74	.00	3.71	.1272	.52287
Valid N (listwise)	71				

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Survey Results (Fall 2001): Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Average number of visits to nurse AM	60	.29	19.71	6.8848	4.54284
Average number of visits to nurse PM	60	.00	16.56	5.8752	4.18228
Average number of discipline incident AM	56	.00	8.00	1.7170	1.52300
Average number of discipline incident PM	56	.00	20.22	2.1711	3.41305
Average Number of visits to nurse regarding contagious illness: AM	60	.00	5.00	.6817	.94448
Average Number of visits to nurse regarding contagious illness: PM	60	.00	4.57	.3650	.75940
Average Number of visits to nurse regarding injuries: AM	60	.00	7.57	2.4949	1.86405
Average Number of visits to nurse regarding injuries: PM	60	.00	8.56	2.4777	1.94277
Average Number of visits to nurse regarding minor illness: AM	60	.00	8.11	2.6542	1.74335
Average Number of visits to nurse regarding minor illness: PM	60	.00	7.00	2.2223	1.60051
Average Number of visits to nurse regarding acute illness: AM	60	.00	4.00	1.0540	.91552
AverageNumber of visits to nurse regarding acute illness: PM	60	.00	4.00	.8102	.89763
Average Number of discipline incidents classroom: AM	56	.00	6.89	.7334	1.04790
Average Number of discipline incidents classroom: PM	56	.00	7.67	.7436	1.23207
Average Number of playground discipline incidents:AM	56	.00	2.33	.3735	.53082
Average Number of playground discipline incidents: PM	56	.00	3.78	.6047	.90955
Average Number of hallway and cafeteria discipline incidents: AM	56	.00	1.88	.2345	.30824
Average Number of hallway and cafeteria discipline incidents: PM	56	.00	4.67	.3319	.72257
Average Number of bus discipline incidents: AM	56	.00	1.44	.2421	.34198
Average Number of bus discipline incidents: PM	56	.00	1.00	.0880	.18546
Average Number of other discipline incidents: AM	57	.00	1.78	.1312	.31394
Average Number of other discipline incidents: PM	57	.00	9.78	.3958	1.49932
Valid N (listwise)	51				

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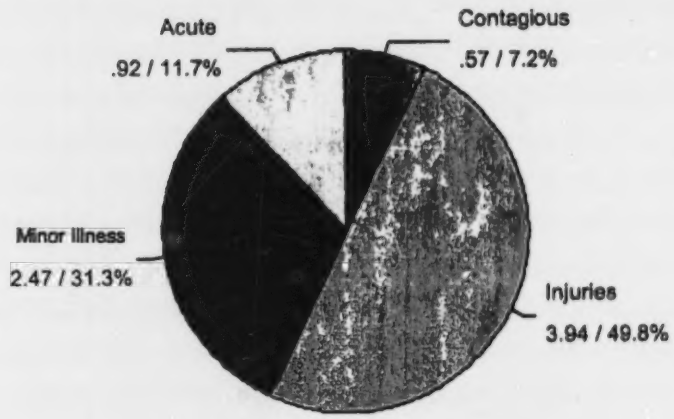
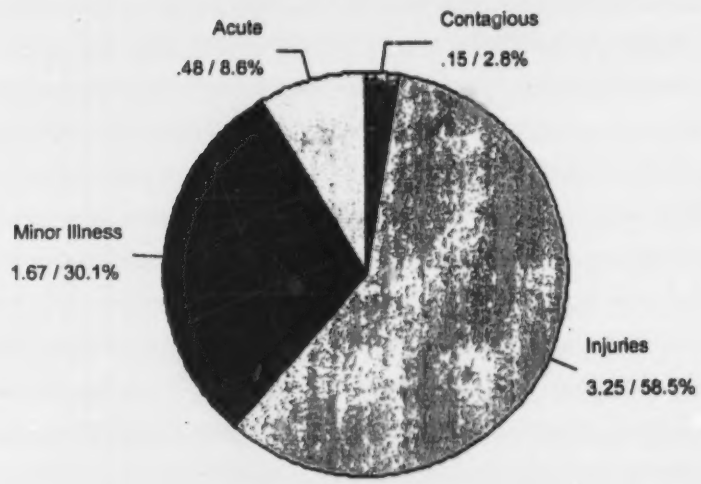
Nurse Visits in AM

Spring 2001



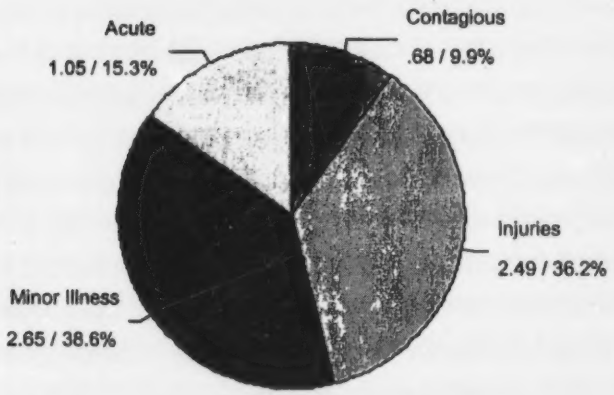
Nurse Visits in PM

Spring 2001



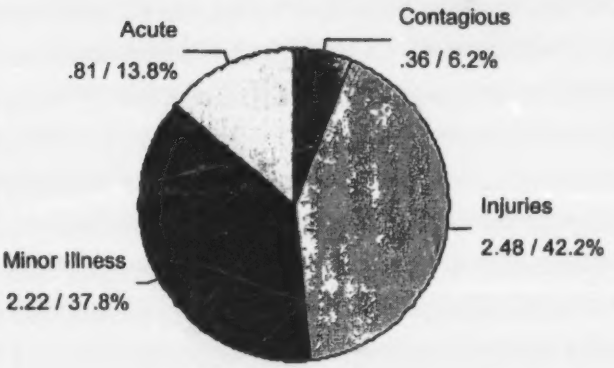
Nurse Visits in AM

Fall 2001



Nurse Visits in PM

Fall 2001



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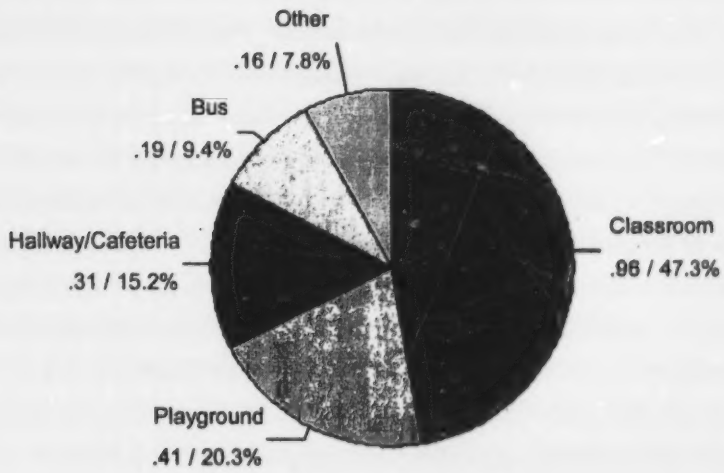
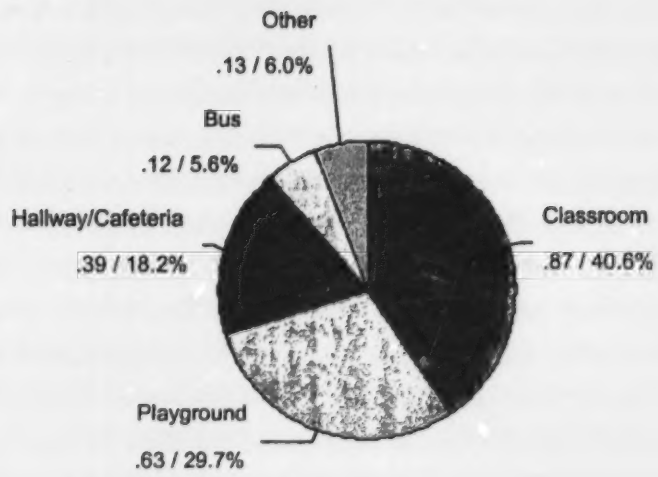
Disciplinary Incidents in AM

Spring 2001



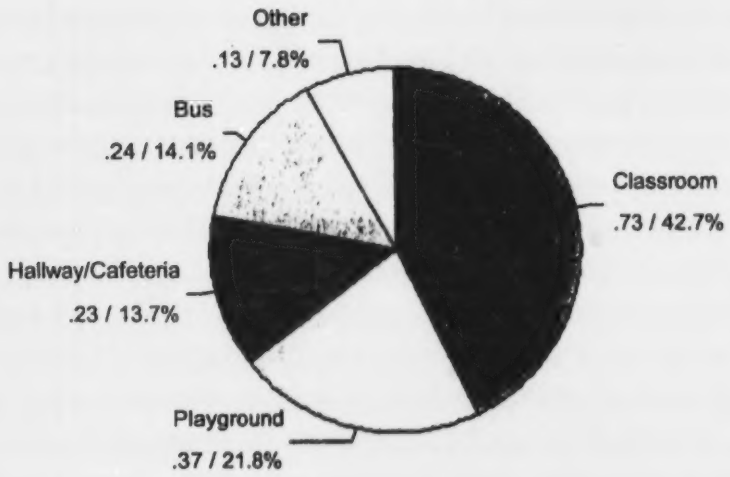
Disciplinary Incidents in PM

Spring 2001



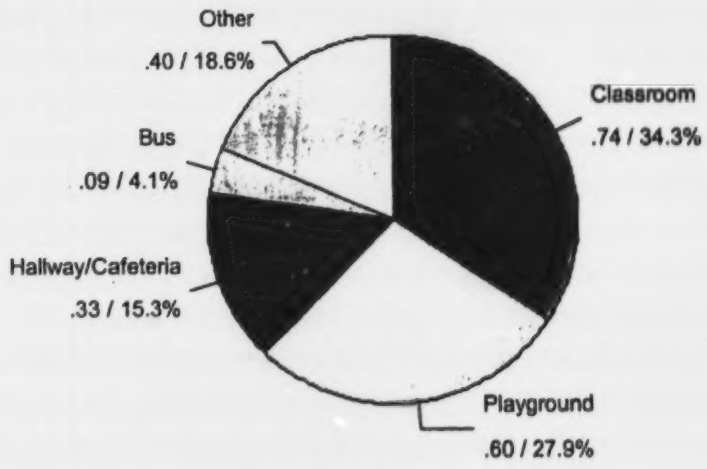
Disciplinary Incidents in AM

Fall 2001



Disciplinary Incidents in PM

Fall 2001



APPENDIX D: Survey Forms

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Fastbreak to Learning Breakfast Program
Interview Questions

1. Some schools serve breakfast before school starts; others serve it after school starts. When does your school serve breakfast?

Where do you serve it? Why?

What are you serving? Why? Do kids seem to like it?

2. What would you guess your school's participation is in the breakfast program. Do you consider this to be a high, moderate, or low participation rate for your school?

Why?

3. If you wanted to improve the participation rate what would you do?
Is your school doing this?

4. What is this school doing to promote the program?

5. What did you do to inform parents about the program? (Teachers? Students? Food Staff?)

6. What have you heard from parents about the program? (students?, teachers?, principal?)

7. Why do you think that some students participate while others do not?

8. Have you noticed that certain groups of students are more likely to participate? Less likely? What are the characteristics of these groups?

9. How do the majority of your students get to school?

(BEFORE SCHOOL)
How do students get to school early enough to eat breakfast?

How do students feel about coming early?

Are there students who do not participate because they cannot get to school early?

(AFTER SCHOOL STARTS)
Do you do anything else while students are eating breakfast? (take attendance, make announcements)

Does serving breakfast lead to a loss of instructional time?

(ALL)
How do you feel about the program?

School Breakfast Program Survey

School Food Service

Please print.

Name of School Food Authority_____
Last First M

Telephone (___)_____ **Fax (___)**_____ **E-Mail** _____

Name of person completing survey_____
Last First M

Telephone (___)_____ **Fax (___)**_____ **E-Mail** _____

Instructions: This survey pertains to the 2000-01 school year at the school identified on the cover label. Please answer the questions as they apply to this school only.

1. How much do you charge elementary students per breakfast at this school during the 2000-01 school year? If you do not charge students for breakfast, please indicate by entering a zero. Do not leave blank.

   Full-Paying Student $ ___.___ per meal Reduced-Priced Student $ ___.___ per meal

2. What grade levels are offered the School Breakfast Program at this school? Circle all that apply.

   K 1 2 3 4 5 6 7 8 9 10 11 12

3. Are there any students in the grades circled above who do not have access to the School Breakfast Program? Check one.

   All have access _____ Some students do not have access (describe) _____

4. List the total time period that the breakfast meal service is available to students.

   Begins at: _____AM Ends at: _____AM

5. Where and when do students eat breakfast? Check all that apply.

   _____ In the school cafeteria before school starts

   _____ In the school cafeteria after the start of the school day

_____ In the classroom before the start of the school day

_____ In the classroom after the start of the school day

_____ Other (Explain) _____

6. What breakfast serving method(s) is/are used? Check all that apply.

_____ A traditional cafeteria line

_____ Breakfast menu components are delivered to the classroom

_____ Bag or pre-packed meal is provided to each student

_____ Other (Describe)_____

7. How was the School Breakfast Program promoted to parents this year? Check all that apply.

_____ No notification or promotion conducted

_____ District publication

_____ School newsletter

_____ Parent meeting

_____ Local paper

_____ Promotional flyer

_____ On the lunch menu sent home to parents

_____ Other (Describe) _____

8. How was the School Breakfast Program promoted to students this year?

_____ P.A. Announcements

_____ Assembly

_____ Bulletin Boards

_____ Taste Testing / Food Samples

_____ Other (describe) _____

We are seeking your opinions about the benefits and difficulties in implementing the School Breakfast Program during school year 2000-01. Please provide us with your perceptions of the benefits and the barriers according to the statements below.

9. The School Breakfast Program provides benefits to the overall School Meal Programs.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

10. There were barriers in implementing the School Breakfast Program.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

Some schools have reported the following difficulties or barriers in implementation. Please indicate the presence or absence of these in your school during school year 2000-01.

	Still is a barrier	Was a barrier, but has been overcome	Not ever a barrier	Don't Know
11. Bus schedules	☐	☐	☐	☐
12. Lack of time before the school day	☐	☐	☐	☐
13. Takes away from the instructional day	☐	☐	☐	☐
14. Lack of parent support	☐	☐	☐	☐
15. Perception that school breakfast is only for free and reduced-priced students	☐	☐	☐	☐
16. Additional supervisory staff are needed while students eat breakfast	☐	☐	☐	☐
17. Additional custodian services are needed	☐	☐	☐	☐

18. Students perceive the school breakfast as not socially acceptable ☐ ☐ ☐ ☐

19. Other difficulties (Describe)_____ ☐ ☐ ☐ ☐
_____

20. Additional comments or concerns

Thank you for completing this survey. Please retain a copy for your records.

Please do not remove the cover page that has a label with the school name. The name of the school is needed for data entry. Only aggregate data will be reported from the study.

Return this survey by March 1, 2001 in the envelope provided to:

Minnesota Department of Children, Families & Learning
Food and Nutrition Service
1500 Highway 36 West
Roseville, MN 55113-4266

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School Breakfast Program Survey
Principal

Please print.

Principal Name _____
Last First M

Telephone (___)_____Fax(___)_____E-mail _____

Name of person completing survey if other than principal _____
Last First M

Telephone (___)_____Fax (___)_____ E-Mail _____

Instructions: This survey pertains to the 2000-2001 school year at the school identified on the cover label. Please answer the questions as they apply to this school only.

1. What time does the last bus arrive in the morning at this school? _____ AM

2. What is the official start-time of the school day? _____AM

3. Who usually provides supervision of students while they eat breakfast? Check all that apply.

   _____ Each class has a teacher present while the students eat their breakfast.

   _____ An aide is assigned by the school to be present during breakfast.

   _____ School food service personnel supervise the students in the cafeteria

   _____ Other (Describe) _____

4. While the students eat, do other activities take place? Check all that apply

   _____ Students socialize with each other

   _____ Attendance is taken

   _____ School and classroom information is announced

   _____ Teachers explain the day's schedule

   _____ Students have a discussion (example: news events)

   _____ A book is read aloud

_____Student assignments are returned

_____ Other (Describe) _____

5. How were <u>teachers</u> informed of the School Breakfast Program this school year? Check all that apply.

_____ No information provided

_____ Announcement at a teacher meeting

_____ District publication

_____ School newsletter

_____ Promotional flyer

_____ Other (Describe) _____

6. How was the School Breakfast Program promoted to <u>students</u> this year? Check all that apply.

_____ No information provided

_____ Classroom teacher

_____ School newsletter

_____ Community newspaper

_____ School food service personnel made presentations in classes

_____ Posters

_____ Promotional flyer

_____ Parent communication

_____ Other (Describe) _____

7. Is nutrition education included in your elementary curriculum?

_____ Yes _____ No _____ Do not know

8. If yes, does the instruction include the benefits of eating breakfast?

_____Yes _____No _____ Do not know

We are seeking your opinions about the benefits and difficulties in implementing the School Breakfast Program during school year 2000-01. Please provide us with your perceptions of the benefits and barriers according to the statements below.

9. There are benefits to the school for providing the School Breakfast Program.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

10. Please check the all the benefits that you think apply.

- ☐ Improved attendance
- ☐ Decreased incidence of tardiness
- ☐ Decreased incidence of negative behaviors (rowdiness, aggressive behaviors, etc.)
- ☐ Fewer visits to the nurse's office in the morning due to a headache, stomach ache or tiredness.
- ☐ Opportunity for positive student socialization
- ☐ Students are more attentive to learning tasks
- ☐ Parents report school breakfast as a welcomed service.
- ☐ Provided a breakfast to students who may not have had breakfast at home.
- ☐ Other (Describe) _____

_____

11. There were barriers in implementing the School Breakfast Program.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Disagree
☐	☐	☐	☐	☐

Some schools have reported the following difficulties or barriers in implementation. Please indicate the presence or absence of these in your school during school year 2000-01.

	Still is a Barrier	Was a barrier, but has been overcome	Not ever a barrier	Don't Know
12. Bus schedules	☐	☐	☐	☐
13. Lack of time before the school day	☐	☐	☐	☐
14. Takes away from the instructional day	☐	☐	☐	☐
15. Lack of parent support	☐	☐	☐	☐
16. Perception that school breakfast is only for free and reduced-priced students	☐	☐	☐	☐
17. Additional supervisory staff are needed while students eat breakfast	☐	☐	☐	☐
18. Additional custodian services are needed	☐	☐	☐	☐
19. Students perceive the school breakfast as not socially acceptable.	☐	☐	☐	☐
20. Other difficulties (Describe)_____	☐	☐	☐	☐

_____

21. Additional comments or concerns.

Thank you for completing this questionnaire.

Please do not remove the cover page that has a label with the school name. The name of the school is needed for data entry. Only aggregate data will be reported from the study.

Return this survey by March 1, 2001, in the envelope provided to:

Minnesota Department of Children, Families & Learning
Food and Nutrition Service
1500 Highway 36 West
Roseville, MN 55113-4266

Form 3

Fast Break to Learning School Breakfast Program Survey
School Food Service

Please print.

Name of School Food Authority _____
Last First M

Telephone (___)_____ **Fax**(___)_____ **E-Mail**_____

Name of person completing survey_____
Last First M

Telephone(___)_____**Fax**(___)_____ **E-mail**_____

Instructions: This survey pertains to the 2000-01 school year at the school identified on the cover label. Please answer the questions as they apply to this school only.

1. How much do you charge to elementary students per breakfast at this school for the 2000-01 school year? If you do not charge students for breakfast, please indicate by entering a zero. Do not leave blank.

   Full-Paying Student $___.___ per meal Reduced-Priced Student $___.___ per meal

2. Do you now serve breakfast at no charge to elementary students in this school's Fast Break to Learning breakfast program who previously received the breakfast at the reduced-price?

   _____ Yes _____ No

3. When did you start the Fast Break to Learning breakfast program this year?

   Month: _____/_____

4. How much do you currently charge elementary students per breakfast per meal in schools NOT participating in the Fast Break to Learning breakfast program during the 2000-01 school year?

   Full-Paying Student $___.___ per meal Reduced-Priced Student $ ___.___ per meal

   Not Applicable (All schools are on the Fast Break to Learning breakfast program)
   ____

5. What are the sources of the Fast Break to Learning Grant matching funds for this school in school year 2000-01? Check all that apply.

   _____ Charge to the full-paying student

_____ Revenue from a la carte sales

_____ Donations (donated money or goods)

_____ Volunteer labor (equated into dollars)

_____ School fundraiser

_____ Other (Describe) _____

6. Estimate total local match funds for this school for 2000-01 school year.
   $_____

Schools use many different ways to plan and implement new programs. Please indicate who was involved in planning and implementing the Fast Break to Learning breakfast program for school year 2000-01.

7. Who was involved in planning and implementing the Fast Break to Learning breakfast program? Check all that apply.

_____ School Food Authority

_____ Business Manager

_____ Principal

_____ School Food Service Manager

_____ Site Coordinator

_____ Teacher

_____ Parent

_____ School Nurse

_____ Other (Describe)_____

8. What grade levels are offered the Fast Break to Learning breakfast program at this school? Circle all that apply.

K 1 2 3 4 5 6 7 8 9 10 11 12

9. List the total time period that the breakfast meal service is available to students.

Begins at: _____ AM Ends at: _____AM

10. Where and when do students eat breakfast? Check all that apply.

_____ In the school cafeteria before school starts

_____ In the school cafeteria after the start of the school day

_____ In the classroom before the start of the school day

_____ In the classroom after the start of the school day

_____ Other (Explain) _____

11. What breakfast serving method(s) is/are used? Check all that apply

_____ A traditional cafeteria line

_____Breakfast menu components are delivered to the classroom

_____ Bag or pre-packed meal is provided to each student

_____ Other (Describe)_____

12. How was the Fast Break to Learning breakfast program promoted to <u>parents</u> this year? Check all that apply.

_____ No notification or promotion conducted

_____ District publication

_____ School newsletter

_____ Parent meeting

_____ Local paper

_____ Flyer sent home to parents

_____ On the lunch menu sent home to parents

_____ Other (Describe) _____

13. How was the Fast Break to Learning breakfast program promoted to students this year?

_____ P. A. Announcements

_____ Assembly

_____ Bulletin Boards

_____ Taste Testing / Food Samples

_____ Other (describe) _____

We are seeking your opinions about the benefits and difficulties in implementing the Fast Break to Learning breakfast program during school year 2000-01. Please provide us with your perceptions of the benefits and the barriers according to the statements below.

14. The School Breakfast Program provides benefits to the overall School Meal Programs.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
☐	☐	☐	☐	☐

15. There were barriers to implementing the School Breakfast Program.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
☐	☐	☐	☐	☐

Some schools have reported the following difficulties or barriers in implementation. Please indicate the presence or absence of these in your school during school year 2000-01.

	Still is a Barrier	Was a barrier, but has been overcome	Not ever a barrier	Don't Know
16. Bus schedules	☐	☐	☐	☐
17. Lack of time before the school day	☐	☐	☐	☐
18. Takes away from the instructional day	☐	☐	☐	☐

19. Lack of parent support	☐	☐	☐	☐
20. Perception that school breakfast is only for free and reduced-priced students	☐	☐	☐	☐
21. Additional supervisory staff are needed while students eat breakfast	☐	☐	☐	☐
22. Additional custodian services are needed	☐	☐	☐	☐
23. Students perceive the school breakfast as not socially acceptable.	☐	☐	☐	☐
24.Other difficulties (Describe)___	☐	☐	☐	☐

25.Do you plan to apply for Fast Break to Learning grant funds for the 2001-02 school Year?

_____ Yes _____ No

If no, please explain why.

Additional comments or concerns

Thank you for completing the survey. Please retain a copy of the survey for your records.

Please do not remove the cover page that has a label with the school name. The name of the school is needed for data entry. Only aggregate data will be reported from the study.

Return this survey by March 1, 2001, in the envelope provided to:

Minnesota Department of Children, Families & Learning

Food and Nutrition Service
1500 Highway 36 West
Roseville, MN 55113-4266

Fast Break to Learning School Breakfast Program Survey
Principal

Please print.

Principal Name_____
Last First M

Telephone (___)_____ Fax(___)_____ E-Mail _____

Name of person completing survey if other than principal_____
Last First M

Telephone(___)_____ Fax (___)_____E-Mail _____

Instructions: This survey pertains to the 2000-01 school year at the school identified on the cover label. Please respond to the questions as they apply to this school only.

1. What time does the last bus arrive in the morning at this school? _____ AM

2. What is the official start-time of the school day? _____AM

3. Who usually provides supervision of students while they eat breakfast? Check all that apply.

   _____ Each class has a teacher present while the students eat breakfast.

   _____ An aide is assigned by the school to be present during breakfast.

   _____ School food service personnel supervise the students in the cafeteria

   _____ Other (Describe) _____

4. While the students eat, do other activities take place? Check all that apply.

   _____ Students socialize with each other

   _____ Attendance is taken

   _____ School and classroom information is announced

   _____ Teachers explain the day's schedule

   _____ Students have a discussion (example: news events)

   _____ A book is read aloud

_____ Student assignments are returned

_____ Other (Describe)_____

5. How were teachers informed of the Fast Break to Learning School Breakfast Program this school year? Check all that apply.

_____ No information provided

_____ Announcement at a teacher meeting

_____ District publication

_____ School newsletter

_____ Promotional flyer

_____ Other (Describe) _____

6. How was the Fast Break to Learning School Breakfast Program promoted to students this year? Check all that apply.

_____ No information provided

_____ Classroom teacher

_____ School newsletter

_____ School food service personnel made presentations in classes

_____ Posters

_____ Promotional flyer

_____ Parent communication

_____ Other (Describe) _____

7. Is nutrition education included in your elementary curriculum?

_____ Yes _____ No _____ Do not know

8. If yes, does the instruction include the benefits of eating breakfast?

_____Yes _____No _____ Do not know

We are seeking your opinions about the benefits and difficulties in implementing the Fast Break to Learning School Breakfast Program during school year 2000-01. Please provide us with your perceptions of the benefits and the barriers according to the statements below.

9. There are benefits to the school for providing the School Breakfast Program.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

10. Please check all the benefits that you think apply:

- ☐ Improved attendance
- ☐ Decreased incidence of tardiness
- ☐ Decreased incidence of negative behaviors (rowdiness, aggressive behaviors, etc.)
- ☐ Fewer visits to the nurse's office in the morning due to a headache, stomach ache or tiredness.
- ☐ Opportunity for positive student socialization
- ☐ Students are more attentive to learning tasks
- ☐ Parents report school breakfast as a welcomed service.
- ☐ Provided breakfast to students who may not have had breakfast at home.
- ☐ Other (Describe)_____

_____

11. There were barriers in implementing the Fast Break to Learning School Breakfast Program.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

Some schools have reported the following difficulties or barriers in implementation. Please indicate the presence or absence of these in your school during school year 2000-01.

	Still is a Barrier	Was a barrier, but has been overcome	Not ever a barrier	Don't Know
12. Bus schedules	☐	☐	☐	☐
13. Lack of time before the school day	☐	☐	☐	☐
14. Takes away from the instructional day	☐	☐	☐	☐
15. Lack of parent support	☐	☐	☐	☐
16. Perception that school breakfast is only for free and reduced-priced students	☐	☐	☐	☐
17. Additional supervisory staff are needed while students eat breakfast	☐	☐	☐	☐
18. Additional custodian services are needed	☐	☐	☐	☐
19. Students perceive the school breakfast as not socially acceptable.	☐	☐	☐	☐
20. Other difficulties (Describe)_____	☐	☐	☐	☐

_____

21. Additional comments or concerns

Thank you for completing this questionnaire.

Please do not remove the cover page that has a label with the school name. The name of the school is needed for data entry. Only aggregate data will be reported from the study.

Return this survey by March 1, 2001 in the envelope provided to:

Minnesota Department of Children, Families & Learning
Food and Nutrition Service
1500 Highway 36 West
Roseville, MN 55113-4266

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Log Sheet for Student Visits to the Health Office / School Nurse on

School District __ _____ /School Name _____

INSTRUCTIONS:

- Today (the date shown above) is a designated day to monitor and record visits to the health office/school nurse.
- Beginning with the first time that a student visits health services today, make a check mark [✓] in the box next to the reason for the visit. Do not check more than one reason for a visit. If a student makes more than one visit today, record only the first visit. Please write in the total number of check marks in each box.
- Record morning visits in the first column and afternoon visits in the second column.
- Record visits as soon as possible after each student's visit rather than relying on recall at the end of the day.
- Other visits such as medication administration (see "Other" below) do not need to be recorded.

DO NOT RECORD STUDENTS' NAMES OR IDs ON THIS LOG SHEET

REASON FOR VISIT	A.M. ✓	P.M. ✓
Contagious Chicken pox, head lice, impetigo, pink eye, etc.	Total: _____	Total: _____
Injuries Abrasions, cuts, skeletal injuries, bloody nose, head injuries, etc.	Total: _____	Total: _____
Minor Illness Stomach aches, headaches, reporting "not feeling good"	Total: _____	Total: _____
Acute Illness Asthma attack, vomiting, complaints of earache, cough, sore throat, elevated temperature, etc.	Total: _____	Total: _____
Other Medication administration, hearing and vision screening, evaluating for possible child abuse, menstrual issues, regular care for a special education student, non-health related issues, etc.	*No need to record these visits.*	

Please return all completed health and discipline forms after December 6, 2001, to Minnesota Department of Children, Families & Learning, Food and Nutrition Service, 1500 Highway 36 West, Roseville, MN 55113-4266.

Log Sheet for Student Visits to the School Office for Disciplinary Reasons on

School District _____ School Name _____

INSTRUCTIONS:

- Today (the date shown above) is a designated day to monitor and record disciplinary visits to the school office.
- Please make a check mark [✓] in the box next to the reason for the visit. Do not check more than one reason for a visit. If a student makes more than one visit today, record only the first visit. Please write in the total number of check marks in each box.
- Record morning visits in the first column and afternoon visits in the second column.
- Record visits as soon as possible after each student's visit rather than relying on recall at the end of the day.

DO NOT RECORD STUDENTS' NAMES OR IDs ON THIS LOG SHEET

REASON FOR VISIT	A.M. ✓	P.M. ✓
Classroom (including library and specialists' classrooms)	Total: _____	Total: _____
Playground	Total: _____	Total: _____
Hallway / Cafeteria	Total: _____	Total: _____
School Bus	Total: _____	Total: _____
Other Please specify place, and check each time an infraction occurs.	Total: _____	Total: _____

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Please return all completed health and discipline forms after December 6, 2001, to Minnesota Department of Children, Families & Learning, Food and Nutrition Service, 1500 Highway 36 West, Roseville, MN 55113-4266.

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